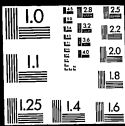


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CENTIMETERS



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Thomas A Edison Papers

*A SELECTIVE MICROFILM EDITION
PART V
(1911-1919)*

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Thomas A. Edison Papers
at
Rutgers, The State University of New Jersey
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18 June 1981

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A Note on the Sources
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**SPECIAL COLLECTIONS SERIES
NAVAL CONSULTING BOARD
AND RELATED WARTIME
RESEARCH PAPERS**

**Naval Consulting Board and Related Wartime Research Papers
Correspondence (1919)**

This folder contains correspondence and other documents pertaining to Edison's continuing association with the Naval Consulting Board (NCB) and his experimental research for the Navy during the year following the end of the war. The correspondents include Secretary of the Navy Josephus Daniels and Assistant Secretary Franklin D. Roosevelt; NCB members Andrew M. Hunt, Thomas Robins, and William L. Saunders; inventor William G. Ruggles, and experimenters Paul D. Payne and Bruce R. Silver. Included are items relating to the writing of an official history of the Naval Consulting Board by Lloyd N. Scott; Edison's use of the yacht USS *Hauoli* for experimental research; his opinion about the future role of the NCB; and ongoing questions about the planned Naval Research Laboratory. There are also documents pertaining to the end of the war, including the disposition of various supplies and equipment, the termination of experimental work by some of Edison's men, and a preliminary list of Edison's research projects prepared by his assistant William H. Meadowcroft for Rear Admiral W. Strother Smith, the Naval officer responsible for the NCB. Some of the letters discuss Newman H. Holland's acoustic range finder and the submarine listening apparatus that Edison wished to have built at the Brooklyn Navy Yard.

Approximately 50 percent of the documents have been selected. The unselected material includes routine items relating to financial, administrative, and personnel matters; unsolicited correspondence from inventors; routine thank-you letters signed by Edison; and documents, unrelated to Edison, regarding the future of the NCB.

S. P. No. 249 (Hauck)
Gravesend Bay, N.Y.
Jan. 8 1919.

Boat

GENERAL DESCRIPTION OF YACHT U.S.S. HAUOLI S.P. 249.
TO THOMAS A. EDISON.

Length overall	220 feet.
Length on waterline	187 feet.
Net tonnage	203
Gross tonnage	300
Coal capacity	55 tons.
Water capacity	5300 gals.
Provisions for 5 days.	
10 K.W. dynamo (No batteries)	
Draught	11 feet.
Beam	21 feet.
4 Cylinder triple expansion engine.	
Single screw propulsion.	
Maximum speed 17 knots. Economic speed 13 knots.	
Wireless telegraph and wireless telephone.	
3 Listening devices.	
Crew 60 men and 6 officers.	
Stub bowsprit (No stays attached)	

File

Warren Harris, Lieut. Usdick

John G. Hanley
Signed.

Sackett

Jan . 8, 1919.

From: The Commandant, Third Naval District.
To: Commanding Officer USS SACKETT (S.P.192)
Subject: O&B 200.

1. The USS SACKETT (S.P.192) is hereby detached from T.A. Nelson, Third District Naval Force.
2. You will proceed with the vessel under your command to Pier 72, East River, and report to Commanding Officer of Squadron 20-0 for duty.
3. The USS SACKETT (S.P.192) is assigned to Squadron 20-0, Third District Naval Force.
4. The USS SACKETT (S.P.192) is assigned to Pier 72, East River, for supplies.

H. A. Johnson

By direction Jan 11, 1919.

Cy - Commanding Officer - Squadron 200
Supply Officer, Pier 72
Opnav.
T.A. Nelson ✓

*I called Commander Pearson on
phone and protested against this order
as Mr. Nelson was not through with
Sackett. Com's Pearson said a memo
had been issued with this order notifying
it to take effect only when Mr. S.
had found another available ship.
By clerical error copy of
this memo. had not
been sent to Mr. S.*

W.M.

G O P Y

January 9, 1919.

MEMORANDUM FOR COMMANDING OFFICER, SACHEM

You will continue your present duties until properly relieved by another vessel.

Cy: Commanding Officer, SACHEM
Commander Arnold
Files

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, CHIEF CLERK.
BENJAMIN D. TRAVES, TREASURER.
THOMAS ROBINSON, SECRETARY.

OFFICE OF THE SECRETARY,
13 PARK ROW, NEW YORK

Jan. 11, 1919.

Mr. Thomas A. Edison,
Laboratory,
Orange, N. J.

My dear Mr. Edison:

With reference to the enclosed statements ~~and my~~ circular letter to the members of the Board, I write to ask you particularly to give us the benefit of your judgment as to what our Board ought to be and ought to do in future.

You will find on reading over the statements a great deal of matter which a patent lawyer would object to as being "irrelevant and immaterial". The really definite suggestions are scarce. The majority seem to favor a purely inactive future; a Board which would create nothing of its own and would simply wait to be consulted.

This in my opinion would render it a purely ornamental and useless body. Emmet and I seem to agree pretty closely on another plan, but your own views will be the result of so much knowledge and experience that they will be awaited with great interest, and I hope that you will find it possible to let us have them.

Very truly yours,

Thomas A. Edison

kick this in shape

TR/gt
Encs.

My dear Robinson

I believe all the members of the Consulting Board should place their responsibility in the hands of the Secy of the Navy for action
one way or another
if he wants the board to continue
let him devise a practical way for cooperation with the Navy
otherwise if he cannot do this & in my opinion he is powerless to do so we should insist on accepting every decision alone

[ATTACHMENT/ENCLOSURE]

NAVAL CONSULTING BOARD.
OF THE UNITED STATES

THOMAS A. EDISON,
PRESIDENT.
WILLIAM L. SAUNDERS,
CHAIRMAN.
BENJAMIN B. THAYER,
VICE CHAIRMAN.
THOMAS ROBINS,
SECRETARY.

OFFICE OF THE SECRETARY
113 PARK ROW, NEW YORK

Jan. 11, 1919.

To the Members of the Naval Consulting Board:

Dear Sirs:

I am sending to each member of the Board a complete copy of all the statements made by our members at the meeting of December 14th and later revised.

The purpose of that meeting was set forth very clearly by the Chairman, Mr. Saunders. After dwelling upon the importance of devising some plan "to marry the civilian inventors and scientific men with the Navy Department", he asked "each member of the Board to give his views on the whole situation as to the future of the Board"

It will be seen however that in the very interesting statements which were made, some of our members did not stick closely to the text as stated by the Chairman. Therefore in order to provide Secretary Daniels with exactly what he asks for, namely the views of our members as to the future of the Board, I now make the suggestion that each member after reading the entire discussion submit in a few words on a single page his final recommendation as to the future of the Board, omitting argument, criticism, compliments and other irrelevant matter. These final statements when received will be promptly placed in Mr. Saunders' hands that he may forward them together with the full notes of the discussion to Secretary Daniels.

Yours very truly,

THOMAS ROBINS

TE/gt

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, CHAIRMAN.
BENJAMIN S. TERRY, JR., VICE CHAIRMAN.
THOMAS ROBINSON, SECRETARY.

OFFICE OF THE SECRETARY

13 PARK ROW, NEW YORK

Jan. 13, 1919.

Mr. Thomas A. Edison,
Laboratory,
Orange, N. J.

My dear Mr. Edison:

There are several young men who for a number of months served without pay in this office, performing the very tedious duty of examining letters from inventors. There is nothing that these men would appreciate as much as a letter of appreciation signed by you, and I would suggest that if you care to do it you write the letter somewhat in the following form:

Mr. _____
New York.

My dear Sir:

As President of the Naval Consulting Board of the United States, I beg to thank you for the services which you rendered the Naval Consulting Board during the emergency period following the declaration of war with Germany.

Your valued assistance so willingly volunteered in a spirit of patriotism will be gratefully remembered.

Yours very truly,

NAVAL CONSULTING BOARD
OF THE UNITED STATES
By _____
President.

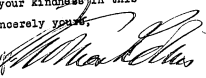
This letter should be addressed to Mr. Alan T. Burlleigh, Mr. Gustavo L. Govin and Mr. W. E. Griffiths, Jr., all being addressed at New York", the letters being sent to me that I may distribute them.

Thanking you in advance for your kindness in this matter, I am

Sincerely yours,

TR/gt

*Mr Edison:
If OK, please sign
the 3 letters
attached.*



January 14, 1919.

Mr. Thomas Robins, Secretary,
Naval Consulting Board of the United States,
13 Park Row,
New York, N.Y.

My dear Robins:

I have read with a great deal of interest the statements and opinions expressed by the Members of the Naval Consulting Board as to its past, present and future standing.

In view of all the facts, I am of the opinion that all the Members of the Naval Consulting Board should place their resignations in the hands of The Secretary of the Navy for action one way or another.

If he desires that the Board should be continued he should devise some practical modifications that would bring it into cooperation with the Officers of the Navy. If he cannot do this, - and I am afraid he is powerless to do so, - I think we should insist on his acceptance of our resignations.

Yours very truly,

A/6299.

DEPARTMENT OF THE NAVY.
GENERAL BOARD,
WASHINGTON.

January 22, 1919.

My dear Mr. Meadowcroft:-

Your letter of January 15th was duly received and the request contained therein promptly complied with. I hope that you receive the maps and bulletins all right, they were mailed on last Saturday even though I am late in acknowledging your letter and informing you of their transmittal.

When I was in Orange, Mr. Edison said he expected to come down here "in a couple of weeks". I have heard nothing more on the subject and am looking forward with pleasure to the time when he will be here again, even if only for a short time.

You will probably remember that when you occupied Admiral Dewey's old room down here, I removed all of the charts and maps from the chart roll on the wall, and assisted in the preparation of a series requested by Mr. Edison. His maps are still in that roll, and I enclose herewith a list of them and request instructions as to their disposition. I doubt if they are of any particular use to him now, but should he want them I would be glad to send them along.

Things are pretty slow here now and I am getting restive again. If you hear of any good job floating around, don't forget me. I wonder if Mr. Ford doesn't want a good associate editor on his new paper. (?) I think I could have the paper suppressed within three issues, if they would publish some things I would like to write.

With kindest regards,

Yours sincerely,

Jamie Butler

Mr. W. H. Meadowcroft,
Thomas A. Edison Laboratory,
Orange, N. J.

6385

tell Butler I won't need the maps till the
next war -

HLR

XX

[ATTACHMENT/ENCLOSURE]

LIST OF CHARTS OR SHEETS IN ADMIRAL BADGER'S HOOL.

1. Spain and Portugal - Cape St. Vincent to Strait of Gibraltar.
Mediterranean - Gulfs of Lyon and Genoa.
2. Spain - Rio Bidasoa to Cape Penas.
Cape Penas to Pontevedra Bay.
Cape Ministerre to Cape St. Vincent.
Pas de Sud (France) to Cape Prior (Spain).
3. Gulfs of Lyons and Genoa.
Tyrrhenian Sea.
Adriatic Sea
Sardinia to Malta (including Sicily).
4. Mediterranean Archipelago (northern and southern sheets).
Turkey in Asia - Rhodes Island to Kara Burnu.
Malta to Cape Malea, including the Ionian Islands.
5. Outline chart of Mediterranean Sea - (large one in 2 sections
and small one).
6. Orkney Islands - northern portion.
Shetland Isles.
7. England - East Coast. North Foreland to Urfordness, including
Entrance to Thames.
Outer Babbard to Outer Douring, including coast from Urfordness
to Elakeney.
England - South Coast. Dungeness to the Thames, including
Dover Strait.
Calais to the R. Schelde entrance.
8. England - Owers to Dungeness.
France - Cape Levi to Pecamp and Pecamp to Boulogne.
9. England - Eddycotone to Portland and Portland to Owers.
The Channel Islands and Adjacent Coast of France.
10. England - Bristol Channel.
Trevose Head to Dodman Point, including Scilly Isles, and
Trevose Head to Bull Point.
11. England - New Quay to Holyhead.
Great Ormes Head to Liverpool.
St. Govens Head to New Quay.
12. Ireland - Slyne Head to Liscahor Bay.
Liscahor Bay to Tralee Bay.
Valentia to Cork.
13. Ireland - Larne to Bloody Foreland.
Horn Head to Rathlin O'Birne.
Rathlin O'Birne to Downpatrick Head.
Downpatrick Head to Achill Head.
Achill Head to Slyne Head.
14. Irish Channel - L. Carlingford to L. Larne, including coast of
Scotland from Port Patrick to Kirkcubright and the Isle of
Man.
Mouth of Clyde and Loch Fyne - Scotland.
Formby Pt. to Kirkcubright - England.

[ATTACHMENT/ENCLOSURE]

2.

15. Scotland - Hebrides or Western Isles.
Mull of Cantyre to Ardnurchan.
Ardnurchan to Summer Isles.
16. Ireland - Skerries Islands to Lough Carlingford, with Dundalk Bay.
Linsule to Wexford.
Wexford to Wicklow.
17. Scotland - Thurso Bay to North Minch, including parts of Orkney
and Lewis, with Sule Skerry, Rona and Sulisker.
Cape Wrath to Flannan Isles.
Aberdeen to Banff.
Peterhead to Pentlands Firth.
18. France - Pte. d'Arcachon to Pte. de la Coubre.
Pte. de la Coubre to Les Sables d'Olonne.
Les Sables d'Olonne to Bourgneuf.
Bourgneuf to I. de Croix.
19. France - Ile d'Ouessant to Plateau des Roches Douvres.
20. Scotland - Souter Pt. to Aberdeen
England - Blakeney to Sunderland.

January 24, 1919.

Mr. J. J. Butler,
General Board Room,
Department of the Navy,
Washington, D.C.

My dear Mr. Butler:

I find on receiving your letter of January 22d that I did not acknowledge the receipt of the maps and bulletins. They came promptly, but I must confess to carelessness in not having written you a note of acknowledgment and thanks. However, I send you our thanks, although they are much belated.

I showed your letter to Mr. Edison so that I could get his instructions about the charts and maps which he had placed on the chart roll in Admiral Dewey's old room. His comment was not extensive, and I will repeat them in toto "Tell Butler I won't need the maps until the next War".
'nuff said?

I have not heard Mr. Edison say anything more about going down to Washington. He has been awfully busy on some special experiments which he is hurrying to finish before he goes on his trip to Florida next month.

This morning I had an idea that I would remind him of his proposed trip to Washington. If I can not a chance later on in the day I shall do it.

I shall bear you in mind if anything good turns up that will be suitable for you. You already know something of my opinion of you, so you may rest assured that it will have to be something worth while. I have no doubt of your ability to carry out your throat if you were appointed Associate Editor on Mr. Ford's new paper.

With kindest regards, I remain,

Yours sincerely, -

*OK Macdonald
7/1/19*

Slip

RSD:CH

January 28, 1919.

From: The Commandant, Third Naval District.
To: Commanding Officer, USS MAUOLI, (S.P. 249)
Subject: ORDERS:

1. The USS MAUOLI (S.P. 249) is hereby detached from Squadron 12, Third Naval District Force.
2. You will proceed with the vessel under your command to Navy Yard and report by telephone to Thos. A. Edison or his representative for experimental duty and will receive from the USS SACHEM (S.P. 192) such equipment as he may direct.
3. The USS MAUOLI (S.P. 249) is hereby assigned to Thos. A. Edison for experimental duty.
4. The USS MAUOLI (S.P. 249) will obtain supplies from the nearest supply station.

Cy: Section 6
Commanding Officer, Squad. 12
Thos. A. Edison ✓

January 30, 1919.

Rear Admiral G. E. Burd,
Navy Yard,

Brooklyn, N.Y.

My dear Admiral:

Mr. Edison wishes me to advise you that he desires to have some changes made in the device which was recently completed at the Yard under the direction of Mr. H. G. Wolfe.

This letter will be given to Mr. Wolfe to hand to you, and Mr. Edison will be obliged if you will kindly facilitate the work as above.

Yours very truly,

Assistant to Mr. Edison.

Enclosure.

[ATTACHMENT/ENCLOSURE]

THOMAS ROBINS

Jan. 22, 1919.

Since submitting my former statement I have become convinced that the mere reorganization of the Naval Consulting Board will not accomplish all that is needed. No mere Consulting Board whether Naval or civilian would in itself have great weight, and the connection of such a body with the various Bureaus would not produce the harmony and efficiency which would lead to success, nor could such a weak and loose jointed arrangement as such a connection would afford measure up to the opportunities which are afforded by the developments of science and their application to the Navy.

The need for practical participation of scientists in Naval development has been realized in Great Britain, where during the latter part of the War a scientist was placed as an advisor in the office of the head of each Department. The results of this plan encouraged the Admiralty to extend it, and recently there has been appointed a Scientific Assistant to the Chief of Staff, in whose hands are placed all research and experimental work, whether problems of pure science or management of experimental laboratories for the development of devices applying to communication, torpedoes, search light, radio, anti-sub marine work and other similar activities.

As the British plan would not exactly suit the organization of our Navy Department I beg to submit the following suggestion, its relevance to this discussion lying in the fact that it would furnish a single branch of the Service to which the Naval Consulting Board would logically be attached:-

An additional Bureau in the Navy Department to be created by Act of Congress to be known as the Bureau of Research and Development.

This Bureau to have the supervision of all scientific, research and development activities of the Navy, either taking charge of them or coordinating them to such extent as may be deemed advisable.

The Bureau to receive appropriations of adequate funds for the development of instrumentalities and devices which arise from its own activities or which are submitted to it from other sources.

The Bureau to have charge of the Research and Experimental Laboratory of the Navy, and to have the power to attach to itself such civilian scientific bodies and individuals as may be desired.

The Secretary of the Navy to have the power to assign to duty with this Bureau such officers and enlisted personnel as may be required in the performance of its duties.

The Chief of this Bureau to be appointed from civil life and to be given the rank, pay and title of Rear-Admiral.

In the meantime, the emergency for which it was created having come to an end, the members of the Naval Consulting Board should place their resignations in the hands of Secretary Daniels.

February 4, 1919.

Mr. Thomas Robins, Secretary,
Naval Consulting Board of the United States,
13 Park Row,
New York, N.Y.

My dear Robins:

Your letter of January 31st was received.

What you propose would never produce results of any value. Like the Navy Department of every Government, their experimental facilities produce no results because they never have the right kind of men to properly man them.

An Experimental Laboratory to be a success must be operated entirely by civilians and come under the direct control of the Secretary of the Navy, who seems to be the only civilian in the outfit. No Naval Officer should have anything to do with it. Their business should be operation, not creation.

The Secretary of the Navy would have at his command the highest grade technical men in the Country, men of great attainments who have come to the top in the commercial struggle due to mental capacity and long experience.

Annapolis produces only students who immediately enter for life into a system that takes away every incentive by which superior men can advance.

As there seems to be no hope of changing this system, my conclusion is that the Naval Consulting Board should be dissolved and the Members resign.

Yours very truly,

A/6476.

[ATTACHMENT/ENCLOSURE]

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON,
PRESIDENT.
WILLIAM L. BAGLEY,
VICE PRESIDENT.
BENJAMIN S. TRAYLOR,
CHIEF CLERK.
THOMAS ROBINS,
SECRETARY.

OFFICE OF THE PRESIDENT

ORANGE, N. J. February 4, 1919.

Mr. Thomas Robins, Secretary,
Naval Consulting Board of the United States,
13 Park Row,
New York, N. Y.

My dear Robins:

Your letter of January 31st was
received. ~~It is~~

What you propose would never produce
any results. A like every other Navy Department,
it would produce nothing. My idea is simply
to resign and let them work out their own schemes.

If any scheme is to be a success it must
be entirely civilian and under direct control of the
Secretary of the Navy, who is the only civilian
in the outfit. No Naval officer should have
anything to do with it, directly or indirectly.

Yours very truly,

Thomas A. Edison

A/6476.

[ATTACHMENT/ENCLOSURE]

... A ^{substitute this date July 4 1944}
What you propose would
never produce results of
any value.

Like the Navy Dept of every
government, their experimental
facilities ~~are~~ produce no
results because they never have
^{the right kind of}
~~best~~ men to properly man
them.

An Experimental Laboratory
to be a success must be
operated entirely by civilians
~~of high attainments and~~
~~of high success.~~ ^{and} under
the direct control of the head
of the Navy, who seems to
be the only civilian in the ~~field~~
x

[ATTACHMENT/ENCLOSURE]

- No navy officer should have
anything to do with it, x
Their business should be
operation, not creation, x
- # The Secy ^{of the Navy} would have at
his command the highest
grade technical men in
the country, men of great
attainments ^{who have come to the top} due to mental
Capacity & long experience
- # Annapolis ~~should~~ ^{they}
~~produce such~~ ^{men}
~~produce such~~ ^{superior}
~~produce~~ ^{superior} students
who immediately enter for life
- Dunsmuir, Virginia

[ATTACHMENT/ENCLOSURE]

3

into a system ~~which~~
~~is~~ that takes away
Every incentive by which
superior men can advance
It does
1 There seems to be no hope
of changing this system
My conclusion is that the
N.C. Board should be dissolved &
we ~~will~~ ~~be~~ ~~better~~ ~~servicemen~~ = the
members design

NAVAL CONSULTING BOARD
OF THE UNITED STATES

6541

THOMAS A. EDISON, PRESIDENT,
WILLIAM L. SAUNDERS, SECRETARY,
BENJAMIN S. HAYLER, CHIEF CLERK,
THOMAS ROBINSON, SECRETARY.

OFFICE OF THE SECRETARY
13 PARK ROW, NEW YORK

Mr. Thomas A. Edison,
Laboratory,
Orange, N. J.

*Rebbling, I think that February 8, 1918.
Congress as well as the Civilian
Secy of Navy are very much in favor
of a purely Civilian Lab, Congress
knows of the abuses & vice procedures*

My dear Mr. Edison:

I want to thank you for your letter of February 8th. I fully agree with you that advanced inventing and scientific work for the Navy ought to be wholly in the hands of civilians, but I believe that such a condition is utterly unattainable. *The Lab is delighted with it* present Naval system is pretty near bombproof. Whenever one of the Bureau Chiefs is threatened or attacked all the others back him up, and each one summons the support of the particular Senator or politician who can be trusted to bring pressure upon the Secretary of the Navy. *has had one or more of their friends & supporters (named down by Wood's censor)*

The relationship between each Naval officer and some political Godfather is closer than is generally supposed. From the time when the politician may have procured the officer's appointment to Annapolis until one of them retires there is likely to be a constant interchange of support and courtesies. The combined strength of the closely knit union of the officers and their political backers would be opposed to any plan which would lessen the importance of the Bureau Chiefs or reduce the amount of money or the patronage at their command.

I would therefore favor a plan which while in the nature

of a compromise and in itself less desirable, would have a better chance of being adopted. I am not even sure that for practical purposes I did not go too far in suggesting that the Chief of the proposed Bureau of Research and Development be appointed from civil life. That will probably arouse great opposition, although it is the practice followed in the Bureau of Yards and Docks.

The object in my mind is to improve conditions in the Navy, and I don't think that there would be any improvement if we were to suggest a plan which would have no chance of being adopted. The story of your own experience with the Naval officers is the big trump card which is yet to be uncovered in the contest between scientific progress and Naval pigheadedness. I hope that you will produce that card at the moment when a clear-cut issue hangs in the balance so that it can be definitely settled by the immense weight of your knowledge and influence, for politically you are an enormous latent power. You are like a loaded sixteen inch gun. Your charge should not be wasted on shooting a rabbit or by being fired senselessly into the air.

Let us arrange a definite issue of such a character that its opposition can consist of nothing but prejudice. Get it before Congress and then arrange for an interview with you which will reach the entire public and through them Congress. With such a shove, the scheme would be pushed through as irresistibly as your six foot rolls handle a five ton rock. Why not utilize your own kinetic energy in this way?

Yours sincerely,



TR/gt

P. Payne

February 8, 1919.

From: Thomas A. Edison, Orange, N.J.
To: Commanding Officer of U.S.S. K-3, Key West, Fla.
Subject: Recommendation of Paul D. Payne.

1. Paul D. Payne, Chief Electrician, was detailed by the Navy Department on or about August 14, 1918, to assist me in some special experiments for the Secretary of the Navy, and since that time has been working here in Orange, under my direction.

2. Payne has told me that since September 1, 1918, he has been eligible for permanent appointment as Chief Electrician. On account of his being engaged on his present attached duty he has not had an opportunity to take the examination.

3. I understand that it will be of assistance to Payne in this connection if I certify, which I now take pleasure in doing, that his work here has been very satisfactory.

(signed) Thos. A. Edison.

[ATTACHMENT/ENCLOSURE]

From: Thomas A. Edison, Orange, N.J.

To: Commanding Officer of
U.S.S. K-3, Key West

Subject: Recommendation of Paul D. Payne

1. Paul D. Payne, Chief-

Electrician, was detailed by

the Navy Department ^{on August}

14, 1918, to assist me in some

special experiments ^{in this}

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that time has been working

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[ATTACHMENT/ENCLOSURE]

2

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as Chief Electrician. On
account of his being engaged
on his present attachment, he
has not had an opportunity
to take the examination.

3. I understand that it was
with assistance to Rique in
this connection if I certify,
which I now take pleasure
in doing, that his work
has been very satisfactory.

February 11, 1919.

Mr. Thomas Robins, Secretary,
Naval Consulting Board,
New York, N.Y.

Dear Mr. Robins:

Your letter of February 9th was handed to Mr. Edison. It arrived only a short time before he left yesterday to go to Florida. He made the following pencil note on your letter, so I will quote it, as follows:

"Robins: I think that Congress, as well as the civilian Secretary of the Navy, are very much in favor of a purely civilian laboratory. Congress knows of the abuses and it is powerless against the Bureau Chiefs, and I feel sure that they would be delighted with a club. Nearly every Congress has had one or more of their friends and supporters turned down by the Navy bureau in past years".

Of course, you realize that there was no time to put this in the shape of a letter so that he could sign it, but the above would have been the substance of the letter.

Yours very truly,

Assistant to Mr. Edison.

A/6541.

February 20, 1919.

Rear Admiral W. Strother Smith, U.S.N.,
Navy Department,
Washington, D.C.

My dear Admiral:

Allow me to hand you herewith our
Laboratory bill for experimental work done by Mr.
Edison covering a period, November 30th, 1918, to
January 31st, 1919, at cost, amounting to \$3,072.70.

This bill is sent in duplicate, cer-
tified to by Mr. Edison.

When the check is ready, you can for-
ward it to me as usual.

Yours very truly,

Assistant to Mr. Edison.

Enclosure.

A.

February 20, 1919.

Hon. Newton D. Baker,
The Secretary of War,
Washington, D.C.

My dear Mr. Secretary:

Allow me to hand you herewith
our Laboratory bill for experimental work done by Mr.
Edison covering a period, November 30, 1918, to January
31, 1919, at cost, amounting to \$1,451.98.

This bill is sent in duplicate, certified
to by Mr. Edison.

When check is ready, you can forward it
to me as usual.

Yours very truly,

Assistant to Mr. Edison.

Enclosure.

A.

NAVAL CONSULTING BOARD
OF THE UNITED STATES

THOMAS A. EDISON,
PRESIDENT.
WILLIAM L. SAUNDERS,
VICE-PRESIDENT.
BENJAMIN S. THAYER,
VICE-CHAIRMAN.
THOMAS ROBINS,
SECRETARY.

OFFICE OF
A. M. HUNT
55 LIBERTY STREET
NEW YORK

*Wanted -
Day to Robins that
I see no objection to this
A. M. Hunt*

February 21, 1919

Dear Mr. Edison:-

I have prepared the enclosed memorandum expressing my ideas in brief form as to the future of the Naval Consulting Board.

I believe the statement is perfectly logical, and the course advised to be perfectly proper and consistent.

I wish to present this statement to the so-called "Interim Committee" of the Board which was appointed after its last meeting, and ask that Committee to approve it, and present it to the Secretary of the Navy as representing the matured opinion of as many members of the Board as are willing to concur in it. I have shown it to the following members whom I could conveniently reach, all of whom have agreed to it without any argument.

Messrs. Saunders, Thayer, Robins, Addicks and Hutchinson.

Will you please reply at your early convenience letting me know if I may also express your concurrence.

Any previous statement you may have prepared is no bar to concurrence with the one I enclose.

Yours sincerely,

A. M. Hunt

Member Naval Consulting Board.

Mr. Thos. A. Edison,
West Orange, N. J.

6687

[ATTACHMENT/ENCLOSURE]

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, CHAIRMAN.
BENJAMIN B. TRAYNER, VICE CHAIRMAN.
THOMAS RODINE, SECRETARY.

OFFICE OF
A. M. HUNT
55 LIBERTY STREET
NEW YORK

MEMORANDUM.

Whether the Naval Consulting Board shall remain in existence or not is a matter for determination by the Secretary of the Navy and not by the Board itself.

If he decides to continue the Board's existence, we believe the resignation of all members of the Board should be placed in his hands, so that he may be free to reconstitute the Board with a personnel which may or may not include the present members.

We believe past experience dictates that if the Board is to be continued, a precept must be prepared in which its status and relation to other branches of the service are defined, and its duties, limitations, and manner of functioning distinctly set forth.

We believe that such precept should be prepared by a joint Board composed of Naval officers, and representatives from the present membership of the Naval Consulting Board and be subject to approval by the Secretary of the Navy.

Unless some such course is followed, it seems to us inevitable that friction, confusion and failure to further the best interests of the service will continue in the future.

REFER TO NO.

U. S. NAVAL AMMUNITION DEPOT
DOVER (LAKE DENMARK), N. J.

Explosives

February 24, 1919.

Edison Laboratory,
Orange, N. J.

Gentlemen:

The Bureau of Ordnance, Navy Department, Washington,
D. C., in its letter No. 32242 of February 19, 1919, directs
that 750 lbs. of explosives belonging to the Navy Department
and now at your Laboratory be delivered to this Ammunition
Depot.

Please deliver this material to bearer, E. Gordon.

Respectfully,

W. H. Dean
Lieutenant, U. S. N.,
in Charge.

- 2 boxes J.M. 7 Shells*
1 tin J.M. 7.
3 small 4 1/2 long box
M. C. Bullets.
5 tins of bullets.
1 box tube fuses.
1 box of ballistics g/p.
13 boxes powder
1 box 500 grain
grenades.
1 can fuse.
2 boxes 200 grain ac/p.
2 tube primers
2 1/2 100 grain powder
1 box 40 grain powder
1 box fuses
1 can tube fuses
1 box Sulfuric Anhydride
1 box 1 1/2 shells lead acid
3 4 1/2 100 grain ac/p.
E. D. Gordon

Yours truly

H X
February 26, 1919.

Mr. Edward N. Hurley,
United States Shipping Board,
Washington, D. C.

Dear Mr. Hurley:

Your letter of February 20th to Mr. Edison has been received in his absence. He has gone down to his winter home in Florida to take a vacation.

I have looked up the letter which you wrote to him on March 18, 1918, enclosing some correspondence relating to a hydro-carbon converter invented by Mr. William T. Cutter, of East Lyme, Conn., and take pleasure in returning these papers, herewith, namely, letter of Mr. William T. Cutter, dated January 20, 1918; lithograph picture of the Beach Oil Electric car; copy letter of Franklin D. Roosevelt to Hon. Frank B. Brandegee, dated March 8, 1918, and original letter of Hon. Frank B. Brandegee addressed to yourself under date of March 14, 1918.

In order to have our files complete I will be very much obliged if you will kindly have your Secretary acknowledge receipt of these papers.

Yours very truly,

Assistant to Mr. Edison.

Enclosures - 4;

A/6644.

IN REPLY ADDRESS
THE SECRETARY OF THE NAVY, INVENTIONS
AND REFER TO NO.

NAVY DEPARTMENT

WASHINGTON

WSS:MM

My dear Mr. Meadowcroft:

On my return from a trip north this morning, I find your letter of the 20th and will send Mr. Edison's bill right in to the disbursing office.

Mr. Edison:

*I have taken
Silver off
my acct
as of
Feb. 28*

I have been informed by the Bureau of Ordnance that Dr. Silver's services have been completed and I forward you a copy of a letter addressed to Dr. Silver directly at the Jones Point Laboratory, Jones Point, N. Y. I am glad to see that his services have been so highly appreciated.

*See my
memo
herewith
attached*

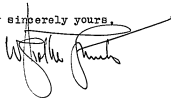
I am preparing a chapter for the Historical Section of the Navy Department on the services of the Naval Consulting Board and of course, Mr. Edison's, for publication. If I could get from you a brief description of the work that he has been doing, I would be very glad to have it, or, if you think it advisable, I will try to come up and go over the matter with you. I have all the rest of the work in very good shape.

Please let me know what Mr. Edison's and your views are on the subject.

With kindest regards, I am

Very sincerely yours,

Mr. Wm. H. Meadowcroft
Edison Laboratory
Orange, New Jersey.



*You might send
me the list you have
& say all of these have
been reported upon & partially
experimented upon & some
Continuing & some are still
well as to how my
time on my
return*

February 27 1919

[ATTACHMENT/ENCLOSURE]

COPY

Feb. 21, 1919

Subject: Services to the Bureau

Sir:

Upon the completion of your experimental work with Hexamethylenetetramine, the Bureau wishes to express its appreciation of the industry and ability with which you have prosecuted this work. The following is quoted from a letter from the Inspector of Ordnance in Charge of the Naval Ammunition Depot, Iona Island, N. Y.:

"The thorough and efficient manner in which Dr. Silver has handled the work entrusted to him and the cheerful and untiring efforts he has displayed in working out the problems which the Bureau from time to time has assigned to him.

The Inspector takes great pleasure in recommending to the Bureau the exceptionally sterling qualities which he has found embodied in Dr. Silver both as a chemist and a citizen."

The Bureau is glad to add an expression of its appreciation of your efforts to that of the officer quoted above.

Very truly yours,

(SGN) Ralph Earle
Rear Admiral U.S.N.
Chief of Bureau.

Dr. Bruce R. Silver
Chief Chemist
Jones Point Laboratory
Jones Point, New York.

Mr. Tolson:
I have notified Silver that under these circumstances you have no alternative but to cut off his name from your pay roll today. *Mendowance*
Feb 28/19

[ATTACHMENT/ENCLOSURE]

Mr. Edison:

This letter of Admiral Smith brings up a question that seems to me to require some careful thought by you.

I suppose the Government is entitled to have information about your work for its Historical Section, but you have been so handicapped by bureaucracy that you have not had a fair chance. In other words, you have worked hard and brought out ideas and plans of immense value, but they have not been put in practice; in fact, we might say they have been pigeon-holed.

I have thought about this subject a great deal in the last 8 or 10 months and fear it is going to be difficult to do you justice in a historical way without plunging you into an endless controversy.

My suggestion is that you send Admiral Smith a list of the things on which you have worked (like attached) and say it would be difficult to go into an extended history, but historically it might be policy to say you had worked on these subjects and had given up two years entirely to the work. Meadows

[ATTACHMENT/ENCLOSURE]

List of ^{over} subjects upon which Mr. Edison
worked in 1917 and 1918 - Experiments
still being continued on some items.

Extension observation points for Battleships (Ladder)

Low visibility - (Sighting of periscopes)

Smudging periscopes -

Turbine lead for projectile

Smoke smudge

Photographic range finder

Preserving submarine guns

Systems of protecting coast from submarines

Ship telephones

Search lights

Sailing lights for convoys

Extinguishing fires on vessels

Absorption of light by seawater

Power for torpedoes

Mirror reflection system for vessels

Devices for observing splash

Under water searchlight

Special projectile for direct water-penetration & to hit target

Trueing Range finder from spray

Aeroplane Bomb

Induction Balance

Protecting observers from smoke stack gas

Submarine buoy for coast patrol

Stability of submarines.

February 28, 1919.

Mr. Bruce R. Silver,
Jones Point, N.Y.

My dear Mr. Silver:

At last the Government has brought out its little quillotine! The axe has fallen and if you will look in the basket you will see your head.

All of which means that I received a letter this morning from Rear Admiral W. Strother Smith stating that your services have been completed. I also received a copy of a nice complimentary letter written to you by Rear Admiral Earle, and I am awfully glad that the Department appreciates the valuable services you have given.

I am sorry to do it, but, of course, the only thing I could do on receiving this notification was to separate you from our pay-roll, as Mr. Edison would not be authorized to continue your name thereon after this notification. We shall make your account up to and including today, and within the next day or two the amount due you will be forwarded.

Our association has been an awfully pleasant one to me, and it would be a great pleasure to us all if at some future time we became once more brought to work together. Mr. Edison is in Florida at present, and I shall send down to him the letters of Rear Admiral Smith and Rear Admiral Earle for his information.

With kindest regards, I remain,

Very sincerely yours,

Assistant to Mr. Edison.

A/6665.

March 3, 1919.

Mr. T. A. Edison:

I have been advised that at Governor's Island, New York Harbor, they have some of the apparatus that was used by the French and British Government Audible Range Finders.

Would you care to have me get full information on these instruments, so that I might report to you on the subject?

From what I understand, very long base lines were used in France, as much as 5000 yards in some cases.

If you wish me to look into the instruments at Governor's Island, Mr. Howdowroft can probably secure for me the necessary authorization from Washington.

25

Mr. Edison:

Assuming that you would like Holland to investigate, I have written the attached letter for your signature.

H. H. HOLLAND.

Think you will have to get permission from Beckard - but you might try the letter on
Measure of S

9/100

March 4, 1919.

Commanding Officer,
Governors Island,
New York Harbor,
New York.

Dear Sir:-

Possibly you may be aware that during the last two years I have been experimenting for the Navy Department on range finding by sound. In these experiments I have employed the services of one of my experts, Mr. N. H. Holland.

I have recently been informed that at Governors Island you have some of the apparatus that was used by the French and British Governments as audible range finders. If it is permissible, I would like to have Mr. Holland obtain full information for me on these instruments. This will introduce Mr. Holland to you, and I shall be glad if you can allow him to acquire the information for me.

Yours very truly,

March 4, 1919.

Mr. A. M. Hunt,
55 Liberty Street,
New York, N.Y.

Dear Mr. Hunt:

I received your letter of February 21st to Mr. Edison, enclosing a memorandum presenting your ideas in brief form as to the future of the Naval Consulting Board, and sent the same down to Mr. Edison.

I have just received it back from him with a memorandum requesting me to say to you that he sees no objection to this.

Yours very truly,

Assistant to Mr. Edison.

A/6687.

March 10, 1919.

Rear Admiral W. Strother Smith, U.S.N.

NAVY DEPARTMENT,

Washington, D.C.

My dear Admiral:

Referring once more to your letter of February 27th, I am in receipt of a note from Mr. Edison asking me to send you the list which I enclose herewith. Mr. Edison also wishes me to say that he has experimented upon all of the items in this list and has partially reported to the Secretary of the Navy; also that experiments are still being continued.

Mr. Edison says that he will see you at any time on his return from Florida.

With kindest regards, I remain,

Yours very sincerely,

Assistant to Mr. Edison.

Enclosure.

A/6726.

NAVAL CONSULTING BOARD
OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT,
WILLIAM L. SAUNDERS, CHAIRMAN,
BENJAMIN B. THAYER, VICE CHAIRMAN,
THOMAS ROBINS, SECRETARY.

OFFICE OF THE SECRETARY
13 PARK ROW, NEW YORK

March 12, 1919.

To the members of the Naval Consulting Board:

Dear Sirs:-

A meeting of the Naval Consulting Board will be held on
Saturday, March 22, at 9:30 A.M.

At the Engineering Societies Building, 29 West 39th St., New York
Office of the American Institute of Mining Engineers.

Please to note the papers attached hereto.

This meeting will be the Annual Meeting of the Board, which
meeting according to Article IV of the "Rules and Regulations of
"the Naval Consulting Board of the United States", "shall take
"place in March".

Yours very truly,

Thomas Robins,
Secretary,
NAVAL CONSULTING BOARD.

TR/gt
Encs.

[ATTACHMENT/ENCLOSURE]

C O P Y

NAVY DEPARTMENT

WASHINGTON

Mar. 11, 1919.

Mr. W. L. Saunders,
11 Broadway,
New York, N. Y.

My dear Mr. Saunders:-

I have this day drawn up a precept appointing five naval officers, to wit: Admiral Benson as senior member, and Rear-Admirals Griffin, Taylor, Earle and Smith as members, to meet with five members of the Naval Consulting Board to be appointed by you, you acting as the chairman of these five members, and upon Admiral Benson's return from abroad please get in touch with him and arrange with him the joint meeting of the Board which the precept directs.

As you know, I am taking Rear-Admirals Griffin, Taylor and Earle abroad with me, and we will get in touch with Admiral Benson while over there. In the meantime, will you please have the Naval Consulting Board fully discuss the subject.

Yours very truly,

JOSEPHUS DANIELS (signed)

[ATTACHMENT/ENCLOSURE]

March 11, 1919.

From: Secretary of the Navy.
To: Admiral W. S. Benson, U.S.Navy.

A Board is hereby appointed, of which you are the senior member, to consist of the following officers and members of the Naval Consulting Board:

Rear-Admirals R.S.Griffin
David W. Taylor
Ralph Earle
W.Strother Smith, Member & Recorder

To meet with the following members of the Naval Consulting Board:

Thos.A.Edison (or D.W.Brunton)
W.L.Saunders
B.B.Thayer
A.M.Hunt
Dr.L.H.Bakeland

The Board will meet shortly after your return from France and when all members can be conveniently gathered together at the Navy Department, Washington, D.C., or such other place as may be found most advantageous, at such time or times as may be designated by you.

The purpose for which this Board is ordered is to consider and devise ways and means by which the Naval Consulting Board may be made more generally useful to the Navy.

Past experience dictates that rules and regulations should be prepared by which the status and relations of the Naval Consulting Board to other branches of the service shall be defined, and its duties, limitations and manner of functioning set forth.

In making its report the Board will, after giving due weight to every consideration, make such suggestions as to the constitution of the Board and the representation thereon of scientific societies as would best subserve the interests of the Naval Service.

JOSEPHUS DANIELS (signed)

Telegraph Rowlett
Mr. Edison: ~~arrived~~ ~~very~~ ~~very~~
aching of I must have Payne)
regret to be obliged
a little longer as he
to report that Payne has been
is necessary to ~~finish~~
ordered back to Key West by
an experiment ~~conducted~~ by
the Navy Department. He goes
an ~~arrives~~ will be of
tomorrow morning.

Yours truly
J. P. Rowlett
Yesterday I was called on
the telephone by ~~Freign~~ ~~Davis~~
of the 3^d Naval District in
New York. He read a telegram
from Washington ordering the
transfer of Payne to Key West.
I explained that he was working
on an experiment for the
Secretary of the Navy, under
your direction, and the work

was not finished. Ensign Davies said he had no alternative but to obey his instructions - He said I could call up Washington. I did so, but they said they could not make any change in the order.

Of course, he has to go. I told him to get everything together and leave a memorandum for you so that you will know just where the work stands.

Meadowcroft

Feb-19/19

With our country at war save time, money, and effort by NOT acknowledging this letter unless you wish further information.
If the Geological Survey has served you it has simply done its duty and will take your appreciation for granted.

7

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
WASHINGTON

OFFICE OF THE DIRECTOR

March 29, 1918.

Holland

Mr. Thomas A. Edison,
Orange, New Jersey.

My dear Mr. Edison:

In reply to your letter of March 4, signed by
Mr. Wm. H. Meadowcroft:

I again thank you for the further description of your acoustic device for determining positions of concealed sound. Owing to the limited range of the measurements of distance, and the relatively large sound necessary, together with the probable cost of the base apparatus which would have to be frequently moved in the course of our rapidly progressing field work, I regret that it does not seem to be a practical method for use by the Geological Survey for measuring distances in connection with its field work. Your description however is of extreme interest, and I trust may lead to some future developments.

Yours very truly,

Philip S. Smith
Acting Director.

2047-104410

Regular
Night Letter CHECK
Day Letter WHICH

TELEGRAM

Via Western Union

Company

Payne
Date 3/26/19 191
Time

Franklin D. Roosevelt,
Asst. Secretary of the Navy,
Washington, D.C.

I have had assisting me on an experiment for the Navy Department since last August. Chief Electrician Paul D. Payne from Submarine K-3. He has suddenly been recalled by the Bureau Navigation. Can I not have Payne come back for a while. He is necessary to finish this experiment which I am sure will be of great value to the Navy.

Thos. A. Edison.

Sent by HAA 5 30 PM

March 26, 1919.

Rear Admiral G. E. Burd,
Navy Yard,
Brooklyn, N.Y.

My dear Admiral:

This letter and drawings will be handed to you by Mr. Hanley, whom you will remember as working under Mr. Edison's direction in regard to the Submarine listening device. Mr. Edison wishes to have the device built in accordance with the above-named drawings, but it is too large a job for our plant. At the Navy Yard you have facilities for making this device, and I believe the instructions already given you by the Secretary of the Navy will be sufficient to warrant your building this device at the Yard.

Mr. Edison is still in Florida and is not expected to return home until about the middle of April.

Yours very truly,

Assistant to Mr. Edison.

A/68717.

NAVAL CONSULTING BOARD
OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT
WILLIAM L. SAUNDERS, CHAIRMAN
BENJAMIN S. THAYER, VICE CHAIRMAN
THOMAS ROBINS, SECRETARY

OFFICE OF THE SECRETARY
13 PARK ROW, NEW YORK

March 27, 1919.

Mr. Thomas A. Edison,
Edison Laboratory,
Orange, N. J.

Dear Sir:

At the Annual Meeting of the Naval Consulting Board held in New York on March 22, 1919, a quorum being present, the following Resolution after discussion was passed by unanimous vote, the

members present being Messrs. Lawrence Addicks, W. L. Saunders,
D. W. Brunton, M. B. Sellers,
W. L. R. Emmet, E. A. Sperry,
A. M. Hunt, Frank J. Sprague,
M. R. Hutchison, B. B. Thayer,
Hudson Maxim, A. C. Webster,
A. L. Riker, R. S. Woodward,
Thomas Robins.

WHEREAS, The appointment by Secretary Daniels, in the fall of 1915, of a Naval Consulting Board composed of members selected by various engineering societies, to bring to the Navy the cooperation of civilian scientists and inventors, was a constructive step taken in contemplation of a great national emergency which is now practically over, and

WHEREAS, Secretary Daniels, by an order dated March 11, 1919, named a Board to "consider and devise ways and means by which the Naval Consulting Board may be made more generally useful to the Navy", and

WHEREAS, The members of the Naval Consulting Board, while deeply appreciating the honor of their appointment and the opportunity which it has given them to serve their country, now believe that better results can be obtained through some other agency than through a purely civilian organization, and

WHEREAS, The importance of research and experimental work is fully appreciated by Naval officers, for which many of them are admirably equipped by education and natural taste, and who need only suitable opportunity and proper encouragement to insure a high measure of success, and

WHEREAS, The officers and bureaus of the Navy have already successfully conducted on a large scale research and experimental work of a high order, cooperating therein with civilian scientists and inventors, be it

RESOLVED, That the members of the Naval Consulting Board respectfully submit to the Secretary of the Navy their belief that they should be relieved from their official duties, and that it is the sense of the Board that after his return from abroad they should present their individual resignations for such action as may seem to him proper, and

RESOLVED, That the Secretary be urged to further within the Naval Service the early formation of a completely equipped research and experimental department, which should include in its organization both Naval officers and civilians under the command of a Naval officer of high scientific attainments, and which, with the proposed Naval Laboratory carried to early completion as a nucleus, shall co-operate with all bureaus and the existing experimental and proving stations, and

RESOLVED, That the members of the Naval Consulting Board hereby express their readiness to respond as individuals to any call from the Navy for such information, advice or assistance as it may lie in their power to give.

After the passage of the above Resolution it was decided unanimously to send the Resolution as adopted with the names of those who had voted in favor of it to all the members of the Board who were not present at the meeting, with the request that such members express their concurrence or non-concurrence with said Resolution.

The Resolution is now sent to you for the purpose mentioned and you are requested to notify me whether you wish to be recorded as concurring or as non-concurring with its adoption.

Yours very truly,

Thomas Robins

TR/gt

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, CHAIRMAN.
BENJAMIN S. THAYER, EXEC. OFFICER.
THOMAS ROBINSON, SECRETARY.

OFFICE OF THE SECRETARY
13 PARK ROW, NEW YORK

March 29, 1919.

Mr. Thomas A. Edison,
Orange, N. J.

My dear Mr. Edison:

Referring to the enclosed circular letter containing the Resolution which was passed at Saturday's meeting of the Board, I want to write you very privately on this subject.

For some time past I have been convinced as to certain matters as follows:-

The old style Bureau Chiefs are utterly unwilling to accept assistance from a prominent civilian body such as the Naval Consulting Board, although they are grateful for help from individual civilians provided the fact is kept quiet. They are intensely jealous, and nothing disturbs them so much as to have it known that any civilian has been of the least possible assistance to the Navy. Also these old style fellows have no knowledge of or sympathy with real scientific development.

There is however a younger element in the Navy, represented by such men as Commander McDowell, who are keenly alive to all that science may do for the Navy. They know that their help must come from civilians and they are not ashamed to give credit where it is due. Up at New London these young officers and a lot of physicists from Schenectady and the Universities worked together like a lot of brothers, and they produced splendid results. McDowell has

outlined a plan for a Department of Scientific Research and Development in the Navy. He proposes to utilize the civilians who have worked at New London and others, and in order to overcome the objections of the Bureau Chiefs he proposes that the civilian scientists shall be given Naval rank and made Lieutenant Commanders, the staff to be increased from time to time.

McDowell's plan is now in Secretary Daniels' hands and is being considered, but I understand that the existence of the Naval Consulting Board is one thing that stands in the way of its adoption.

Reviewing this situation it became obvious to me that the Naval Consulting Board ought to go out of business. The Bureau Chiefs don't like us and will not permit us to do anything, and our existence is therefore simply blocking progress.

The same view was held by most of the members who have been doing the real work, but Mr. Saunders seemed to value the empty honor of being Chairman of a useless organization, and he was unwilling to let it die. It was only the strong ^{opposition} support of the other members that overcame his objections and led to the passage of the enclosed Resolution by a unanimous vote.

I hope that it will receive your support, and I believe that you will endorse it if we are able to prove to you what I believe to be a fact; that the passage of this Resolution will encourage the progressive spirit in the Navy and render possible the real cooperation of officers and civilian scientists.

I am sending you a copy of an article by Commander McDowell which he has written for the Naval Institute.

TR/gt
Encs.

*Mr. Tolson says by
Robins that Evans
Telegrams to Dr. Backlund
Miller, and Dr. Kirtley fully
concern one line disseminated
yet unpublished*

Yours sincerely,
W. H. Rorer

James Roosevelt

Payne

NAVY DEPARTMENT.
ASSISTANT SECRETARY'S OFFICE.
WASHINGTON.

Say to Roosevelt that Payne is of no earthly use at Key West, it was I that wanted him to work on a apparatus of which he is an expert, ^{April 9, 1919.} This apparatus was used very successfully will I think permit automatic firing of the guns on Dreadnaughts at long ranges will much of color accuracy than by a man especially on long ranges I know about Payne's weaknesses at Key West but I feel convinced he was best used at his present place a weather observer. I think the prospecting into the tomb of the King of Siam and the polling of the skull and silver crown typical of him with a bad face.

I enclose previous letter just received

Your telegram about Chief Electrician Payne has come and I have looked up his case. He may be an excellent man to assist you in experiments, but the enclosed memorandum from the Bureau of Navigation I should say he had other qualities not so desirable. This all is a very typical man with a bad face.

But the Bureau's desire to get him back to Key West to settle up his obligations is really on Chalmers's side. It is a very important matter, and I think you will urge with me that he should go back there, at least for a while, until this subject is settled. It seems too bad that I cannot be furnished a very sincere reply.

I had offered Payne \$400.00 to work on it. till his part was successful a had advanced \$50.00 so he is more likely to pay his Key West creditors by finishing this work.

Thomas X. Edison, Esq.,

[Handwritten signature]

[ATTACHMENT/ENCLOSURE]

C O P Y
NAVY DEPARTMENT
BUREAU OF NAVIGATION

7 April 1919

MEMORANDUM for Assistant Secretary :

PAUL DONALD PAYNE, Chief Electrician, while attached to the USS K-3 during the time that vessel was in Honolulu, in company with another enlisted man from the USS K-3, broke into the tomb of one of the kings of Hawaii, stole the skull of the king, the silver crown and certain other articles. The two men melted down the crown and disposed of it. For this offense he was recommended for trial by General Court Martial but about the time the proceedings started, he had Mr. Elison ask for his services in connection with some experimental work. The Secretary directed that court martial proceedings be suspended and that Payne be transferred to the Elison Plant. After many weeks, due to the scattering of the witnesses the Secretary directed that the case be dropped.

There is on file with the record of Payne considerable correspondence dealing with his failure to pay debts. Just prior to his transfer to the Elison Plant he was stationed at Key West. Upon his transfer from Key West he left behind a number of debts which he has not yet paid. His return to Key West was directed, first, because due to the large number of releases which have been made his services were urgently required on his former station, and second, because of the Bureau's desire to get him back to his station in order that he might settle his obligations.

April 14, 1919.

Hon. Franklin D. Roosevelt,
Assistant Secretary of the Navy,
Washington, D.C.

Friend Roosevelt:

I have just returned from Florida and your letter of April 10th in reply to my telegram in regard to Chief Electrician Payne, has been handed to me. I want to thank you for your kind attention in the matter.

I should be inclined to say, offhand, that Payne is of no earthly use at Key West. It was I who wanted him to work on a gyroscope on which class of work he is an expert. This gyroscope, which is very peculiar, will, I think, permit automatic firing of the guns on Dreadnaughts with much greater accuracy than by manual firing, especially on long ranges. Previous to Payne's transfer to Key West I had made several gyroscopes and after many changes I was just finishing the last model, which I believe will be satisfactory. It seems too bad that it cannot be finished. I had offered Payne \$400 to work on it until his part was successful and had advanced him on account \$80. If he were allowed to finish the work he is more likely to pay his Key West creditors as he would then have money.

I knew about Payne's escapade at Honolulu, but feel convinced that he was led into it by his associate, who was a machinist on the same Submarine. This associate is a typical Hun with a bad face.

I have just received a letter from Payne and enclose it for your perusal. Will you kindly return it to me after reading.

Sincerely yours,

A/6915.

April 14, 1919.

Mr. Paul Donald Payne,
U. S. Submarine Base,
Key West, Fla.

Dear Mr. Payne:

I have received your letter of April 8th and did not reply to it before this because I wanted to wait until Mr. Edison came home. He has just arrived at the Laboratory this morning and I showed him your letter. He still wants to have you returned to the Laboratory to finish up the job that you were on, and he is trying to arrange matters so that this can be done.

I note that you have returned the Hydrogen Detector, addressing it for Mr. Warner. Mr. Edison is much obliged to you for kindly attending to that matter.

With kind regards, I remain,

Yours very truly,
and fours for the Victory Loan,

Assistant to Mr. Edison.

A/6914.

8
April 19, 1919.

Reard Admiral W. Strother Smith, U.S.N.,
Navy Department,
Washington, D.C.

My dear Admiral:

Herewith I hand you our Laboratory bill in duplicate for experimental work at cost for the period, January 31, 1919, to March 31, 1919, amounting to \$4,428.55. This bill has been certified by Mr. Edison, and I shall be obliged if you will kindly put it through for payment.

With kind regards, I remain,

Yours sincerely,
and Yours for the Victory Team,

Assistant to Mr. Edison.

Enclosures.

A/6967.

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, CHAIRMAN.
BENJAMIN B. THAYER, VICE CHAIRMAN.
THOMAS ROBINSON, SECRETARY.

OFFICE OF THE SECRETARY
13 PARK ROW, NEW YORK


April 23, 1919

Mr. Thomas A. Edison
Orange, N.J.

My dear Mr. Edison:

At the last meeting of the Board Mr. Saunders announced that Secretary Daniels had authorized him to arrange to have a history of the Naval Consulting Board written and that the cost of the work would be paid for by the Navy Department. After a discussion it was decided to give the job to Captain L.N.Scott who for several months acted as the liaison officer between the Naval Consulting Board and the Inventions Board of the Army. Captain Scott was educated as a mining engineer and has now returned to civil life. Of course, the most interesting part of the book will be that which describes your own work, and I hope therefore, that you will be able to give him as much time as the importance of the work warrants. He is making his headquarters in this office and I have given him access to everything in the Board's files.

Within a few days he will telephone Mr. Meadowcroft to ask for an appointment with you, With kindest regards, I am

Sincerely yours,


11
ADDRESSEE'S REPLY TO
THE SECRETARY OF THE NAVY
AND REFER TO INITIALS

AND NO.
28905-484
Op-14-B-ES 4/25

NAVY DEPARTMENT
WASHINGTON

APR 25 1918

My dear *Mr. M. Edison*:

The steam yacht MAUOLI, S. P. 249, which has been assigned by the Navy Department to Submarine work under your direction is to be sold. The decision to sell this vessel, along with a number of others of which the Navy came into possession during the War emergency is the result of the most careful consideration and has been the subject of much thought on the part of the Navy Department.

The condition of the Naval service at present demands that no more auxiliary vessels be retained in commission than is absolutely necessary.

It is therefore proposed to withdraw the MAUOLI from her special work and to prepare her for sale, unless her continuance in the same is urgently required.

Very ~~truly~~ *Sincerely*

Franklin D. Roosevelt
Acting Secretary of the Navy.

Mr. Thomas A. Edison,
Orange,
New Jersey.

28905-600

7034

April 28, 1919.

Mr. W. L. Saunders,
11 Broadway,
New York, N.Y.

My dear Mr. Saunders:

I have received your letter of April 25th in regard to the history of the Naval Consulting Board and its work. I am quite willing to give Captain Scott all the information about my work, but you will remember that I reported directly to Secretary Daniels, and am not sure whether he would wish to have the information about the experiments disclosed at this time.

I am still continuing work on a few of the experiments.

Yours very truly,

A/7031.

April 28, 1919.

Hon. Franklin D. Roosevelt,
Acting Secretary of the Navy,
Washington, D. C.

My dear Mr. Roosevelt:

(Ref. 28905-684)

I have received your letter of April 24th in regard to the steam yacht Hauoli, S. P. 249, and note that she is to be sold.

I have been using the Hauoli for the continuance of the line of important experiments, in accordance with the wishes of the Secretary of the Navy. I am making some progress, and if it is convenient I would like to keep the vessel for three or four weeks longer as I am having some devices made for trial on that particular vessel.

When these particular tests have been made, I would like, if possible, to have assigned to me another vessel of about the same kind, belonging to the Navy, to which I could transfer my experimental work. A vessel of 150 to 200 feet long, capable of making 10 to 12 knots an hour would be satisfactory for my work.

Will you please advise whether I may count on retaining the Hauoli for three or four weeks, and whether another vessel can be assigned to me after the Hauoli is disposed of.

Very sincerely yours,

A/7034.

15 NY CS 49 NL

KEYWEST FLO MAY 4-15

W H MEADOWCROFT

LABORATORY THOS A EDISON ORANGE NJ

RECD NO ORDERS ALL BOATS GONE AM PRACTICALLY MARKING TIME

HERE PROBABY MR EDISON HAS ENCOUNTERED DIFFICULTY IN MAKING ARRANGEM

MENT IS THERE ANYTHING I CAN DO TO ASSIST CONFIDENT YOU ARE

LOOKING AFTER MATTER WELL BUT WOULD LIKE VERY MUCH TO

KNOW CIRCUMSTANCES WILL YOU KINDLY WIRE ANSWER COLLECT

PAYNE MAY 5-15 745 AM

May 5, 1919.

Hon. Franklin D. Roosevelt,
Acting Secretary of the Navy,
Washington, D. C.

Friend Roosevelt:

Perhaps you will remember you wrote to me on April 9th, in reply to my telegram about Chief Electrician Payne. I wrote to you in reply on April 14th.

This morning I have received the enclosed telegram from Payne. It seems to be just about as I surmised, namely, that they really had no use for Payne at Key West. You will see by his telegram that all the boats are gone and that he has practically nothing to do.

It appears to me rather too bad that I cannot have Payne up here to complete his work on which he has been engaged with me for the Navy Department. I cannot help thinking that the device I have partly finished would be valuable to the Navy.

In view of all the circumstances, don't you think that Payne might be sent back to Orange to help me complete the job?

Yours sincerely,

A/7089.

Enclosure.

P. S. For your convenience, I am attaching copy of your letter of April 9th, together with memorandum.

T. A. E.

[ATTACHMENT/ENCLOSURE]

Meadcroft

Better enclose his
letter with this also
as it will prevent him
looking up the files

He won't remember Payne
without his letter



OK-Hag
copy sent.

ADDRESS REPLY TO
THE SECRETARY OF THE NAVY
AND REFER TO INITIALS
AND NO.

OP-14-B-ES 4/7
28905-684/3-1

~~NAVY~~ DEPARTMENT
WASHINGTON

MAY 9 1919

Wheatscroft

My dear Mr. Edison:

I have to acknowledge the receipt of your letter of April 23th in regard to the steam yacht HAUOLI, S. F. 249, and assure you that it has had my careful consideration. It will be entirely agreeable to the Navy Department to continue the HAUOLI on her present duty with you until June 1st, at which time it is the present intention of the Department to institute negotiations for her sale.

Change the Rowport from Hauoli to Felicia commencing

In order that you may have some vessel to which you could transfer your experimental work, I will direct the FELICIA, S. F. 642, a yacht now in the possession of the Navy, with speed of about 12 knots, and a length of 144.2 feet water line, to be turned over to you on or about June 1st if, after you have inspected her, you find her suitable for such duty.

I would request that you consult with the Commandant of the Third Naval District, Rear Admiral James H. Glennon, U. S. N., 39th Street and Third Avenue, Brooklyn, N. Y., so that you may be afforded proper facilities to inspect this vessel in order that she may relieve the HAUOLI if found suitable.

Admiral Glennon has been informed of the contents of this letter and will do everything in his power to help you in the matter.

Very sincerely yours,

Franklin D. Roosevelt
Acting Secretary of the Navy.

*H.B.
Kearney*

Thomas A. Edison, Esq.,
Orange,
New Jersey.

May 10, 1919.

Rear Admiral G. E. Bard,
New York Navy Yard,
Brooklyn, N.Y.

My dear Admiral:

You have made for me in the Navy Yard a device which I call a "Column Suspension" for use with my other apparatus in pursuing my experiments on the listening device.

I am informed that this is all completed and lying on the Dock. We are all ready to have it put in place on the U. S. S. Hauoli, S. P. 249. My young man says that a special order will have to be issued by you for this work of installation. May I ask you to issue the proper order.

Lieutenant Harris, who is Captain of the Hauoli, and my young man, John Hanley, know just what is to be done and can direct the men whom you assign to the job. If the installation can be done without delay, I shall be very glad, as the Assistant Secretary of the Navy informs me that the Government will dispose of the Hauoli and I can only have the use of her for about three weeks longer. When she is sold, I expect they will assign another boat to me, but I am all prepared otherwise to try out my experiments on the Hauoli.

Sincerely yours,

A/7149

WESTERN UNION TELEGRAM

Form 100

GEORGE W. E. ATKINS, VICE-PRESIDENT NEWCOMB CARLTON, PRESIDENT DELVIDERE BROOKS, VICE-PRESIDENT

RECEIVER'S No.	TIME FILED	CHECK
----------------	------------	-------

SEND the following Telegram, subject to the terms
on back hereof, which are hereby agreed to

May 16, 1919.

191

To

W. H. Meadowcroft, Orange, N. J.

Arrived New London this A. M. Had an
accident due to defective casting. Will repair here and
continue test on return trip.

J. HANLEY.

Received 3:08 PM

SENDER'S ADDRESS
FOR ANSWER

SENDER'S TELE-
PHONE NUMBER

May 21, 1919.

Hon. Franklin D. Roosevelt,
Assistant Secretary of the Navy,
Washington, D.C.

My dear Mr. Roosevelt:

You will undoubtedly recall that at the present time I am using the Hauoli, S.P. 249. This vessel has just returned after very successful experiments which were made 50 miles off Montauk Point in heavy seas. You will remember from our recent correspondence that I have been requested to give up the Hauoli, and take in her place the U.S.S. Felecia, S. P. 642.

I find that this boat, the Felecia, has been in collision and 15 feet of her bow was carried away. The enclosed slip from Lieut. Warren S. Harris, and my man John A. Hanley, will explain in regard to this boat.

Is this the best that can be done, or is it the policy of the Navy to stop further experimenting on the protection of Naval vessels against submarines? If the latter, I would be glad to be informed, as I am conducting these experiments at a considerable personal sacrifice, and do not want to continue if the results are reckoned as no consequence.

Yours sincerely,

A/7190.

Enclosure.

ADDRESS REPLY TO
The SECRETARY OF THE NAVY
AND REFER TO INITIALS
AND NO.

Cp-14 C-1R 5/31
28905-384/C-1:1

NAVY DEPARTMENT
WASHINGTON

318

My dear Mr. Edison:

I fear you misinterpreted the Department's letter of May 21, 1919 in regard to substituting another vessel for the HAUOLI.

As that vessel was in the list to be sold and the FELICIA was to be retained it was desired to substitute the latter vessel for the former, if she was found suitable for your purposes, after an inspection by you.

In view of your letter of May 23rd the Department has decided to continue the HAUOLI in her work under you, for the present.

The Department fully appreciates your work, and it desires to continue its assistance, as far as possible, in the future as it has in the past.

Sincerely yours,



Assistant Secretary of the Navy.

Thomas A. Edison, Esq.,
Orange,
New Jersey.

ADDRESS REPLY TO
THE SECRETARY OF THE NAVY
AND REFER TO INITIAL
AND NO. 28905-684

28905-684

Op-14-B-ES 6/13 NAVY DEPARTMENT
WASHINGTON

1 JUN 16 1914
Say that I have already reported
that I could give up the Hauls at
any time the Navy desires & that
I could transfer the experimental
My dear Mr. Edison:
apparatus to any boat

I feel sure that your deep and well-known interest in the Navy has led you to follow the probable action of Congress as foreshadowed in the reports in the public prints of its evident desire to reduce Naval personnel to the lowest limit consistent with military efficiency, and I therefore take this opportunity of consulting with you regarding the use which is now being made of the HAUII, S. P. 249.

In order to make the reduction in personnel, and also, to reduce as much as possible the number of vessels in commission, thus effecting that necessary economy which is being forced upon us by the conditions of the day, I request to be advised, when it will be convenient and agreeable to you to dispense with the services of this vessel.

Very truly yours,

Joseph Daniel
Secretary of the Navy.

Thomas A. Edison, Esq.,
Orange,
New Jersey.

*that the Navy would certainly
keep in service*

2

*HTD
Harris*

7408

[ATTACHMENT/ENCLOSURE]

Mr. Edison

I guess this was not
written by Secy Daniels himself,
but sent in by someone for
his signature -

The envelope was from
the Bureau of Operations,

Meadowcroft

June 17, 1919.

Rear Admiral W. Strother Smith, U.S.N.,
Navy Department,
Washington, D.C.

My dear Admiral:

Enclosed I hand you Mr. Edison's
Laboratory bill for experimental work covering period,
March 21, 1919 to May 21, 1919, at cost, amounting to
\$3,345.85.

Yours very truly,

Assistant to Mr. Edison.

Enclosures.

June 19, 1919.

Hon. Josephus Daniels,
The Secretary of the Navy,
Washington, D.C.

My dear Mr. Daniels:

I have received your letter
of June 16th, in regard to the Hauoli, S.P. 249.

The matter of releasing this boat was
brought up during your absence, and I have already
reported that I could give up the Hauoli at any
time the Navy Department desires, and that I could
transfer the experimental apparatus to any other
vessel of about the same size that the Navy Depart-
ment would certainly retain in service.

Yours very truly,

A/7408.

Submarine Base,
Key West, Florida.
June 25, 1919. P

Mr. W.H. Mendowcroft,
West Orange, N.J.

7552

Dear Mr. Mendowcroft:

Now that we have our new shops nearly ready for occupancy I am writing to request that you have my tools sent down by express, at present there is very little work ahead and we will not have much to do for several weeks when the new flotilla comes. In the meanwhile I want to conduct a few experiments and afterward I will be able to put in quite a lot of night work.

I am very sorry that I was unable to complete the work on Mr. Edison's device but hope he has had it finished by someone else.

The weather in Key West is very warm just now and the mosquitoes are much too friendly, however if your part of New Jersey is up to the reputation of New Jersey at large we, in Florida, have no cause for complaint on account of mosquitoes.

Thanking you, and with kind regards I am

Yours respectfully

Paul D. Payne

P.S. I would also like to have you send the Nickel Plated experiment motor which was put away with my apparatus.

P.D.P.

*Mr. Edison
Should send
his tools & the
experiment motor to
Mendowcroft*

*No
Send his own
tools, ask Moff
to identify them*

new
10

July 17, 1919.

Hon. Josephus Daniels,
The Secretary of the Navy,
Washington, D.C.

My dear Mr. Daniels:

Ever since the termination of the War there has been considerable discussion among the Members of the Naval Consulting Board as to what should be recommended in regard to its continuance or dissolution.

Several months ago I was asked for my opinion and I wrote a letter to Thomas Robins, the Secretary of the Board. In order that you may be informed as to what is being done I send you herewith a copy of my letter of February 4, 1919.

Although the letter is several months old, it is practically up to date. It was brought to my attention again within the last few days to ascertain if I had changed my opinion, but I told Mr. Robins that my views had not changed.

Sincerely yours,

HAA

Enclosure.

July 18, 1919.

Mr. Paul D. Payne,
Submarine Base,
Key West, Fla.

Dear Mr. Payne:

I must ask you to kindly pardon the delay in answering your letter of June 25th. We have all been pretty busy and you know how it goes around here sometimes.

Mr. Edison was very sorry that he could not have you returned here to help him complete his experiments. He tried in many ways to have you detailed up here, but nothing came of it.

In accordance with your request, I am sending you your tool box. We were afraid that it would not carry safely with the plates that you had put on it, so I am having a box made, and expect it will be shipped to you by prepaid express this afternoon. Please let me know if you receive it safely.

I showed your letter to Mr. Edison, and he stated that he could not very well spare the small nickel-plated experiment motor, and his understanding is that this motor belongs to him.

With kind regards, I remain,

Yours very truly,

Assistant to Mr. Edison.

A. 7552.

THE SECRETARY OF THE NAVY.
WASHINGTON.

10

Personal

July 24, 1919.

My dear Mr. Edison:

I thank you very much for sending me the article, "The Moral of Jutland." When in Great Britain I talked with a great number of men, and also with the King about Jellicoe's book. I found the public opinion was that he had made the mistake of his life in writing the book. In order to explain why he did not win the battle of Jutland he discredited himself as a man chiefly responsible for the construction of the Navy, and in peace times he had been given the duty of building the great fleet which had failed, and he convicts the administrative Jellicoe through failure in construction in order to excuse the fighting Jellicoe through not winning a victory. I should hate to be in his position. I am very glad to get your letter, and to think your diagnosis of the situation is correct.

I cannot tell you how deeply I regret not being able to join you, Ford, and others on the trip this summer. It seems I am fated to miss what I would enjoy more than anything in the world, but as the new Pacific Fleet is to reach the Pacific about the date you are to go on your vacation, I am compelled to be there. It would be a great delight indeed to be with you.

My wife joins in warm regards to you and Mrs. Edison.

Sincerely yours,

Josephus Daniels

Mr. Thomas A. Edison
East Orange, New Jersey

7604

July 26, 1919.

Hon. Josephus Daniels,
Washington, D. C.

My dear Mr. Daniels:

I have received your letter of July 24th, and have read with much interest your remarks about Jellicoe.

Let me assure you that your regret in being unable to get away on the camping trip with us is fully reciprocated on my part. I am very sorry that you cannot go, but shall hope for better luck on some future occasion.

My wife starts tomorrow for her trip out West, and wishes to join with me in kindest regards to you and Mrs. Daniels.

Yours sincerely,

A/7604.

THE SECRETARY OF THE NAVY.
WASHINGTON.

July 28, 1919.

My dear Mr. Edison:-

I thank you for your letter of July 17th, and for enclosing me the one of February 4th. I note what you say about the necessity of having civilians in experimental work and the need of the highest grade of technical men in the country. I feel sure your opinion on this question is right and will bear in mind your wise suggestions. *Not only*
but in case of question of civilian and naval aspect
Sincerely yours,

J. C. Hamblet

Mr. Thomas A. Edison,
Orange, New Jersey.

August 14, 1919.

Mr. Edison,

Four months ago you suggested my conducting an experiment with illuminating gas free from Bensol, compressed in a small metal tank, using it especially in cold weather when gasoline is very hard to gasify or vaporize.

I beg to report that your suggestion works very well with pure illuminating gas and several other gases, such as oxy-acetylene.

When we use a valve synchronized with the ignition timing, that is to admit gas to the cylinders when the piston is in the firing position, it is possible to use the smallest size of battery - even dry batteries will operate - because it is only necessary to press the button and break the primary current and the E. M. F. in the secondary will fire the gas in the cylinders and start engine every time without cranking.

The pipes must be very small - not over 1/16" - fitted to drillholes in the base of spark plugs to the synchronized valve, and the gas pressure need not be more than 20 lbs to prevent a too violent explosion.

The second system is not so complicated; a small gas tank with a reducing valve, and a tube leading from the reducing valve to the intake manifold. With this system it is necessary to crank the engine either by hand or by an electric motor, due to the action of the engine valves and ignition. But the cranking may be very slow - only fast enough to permit the valves to open and close. The suction of the piston from the carburetor is not of very great importance, by reason of the fact that the gas is already in the cylinder and manifold and forced in by the gas pressure in the tank. But it is of extreme importance that the cutoff valves in both systems from the gas tank open and close with great rapidity.

For your own information I might mention that it is possible to build a powerful spring motor and store up the surplus energy of the gas engine in a powerful spring of several horsepower, and when engine is to be started release this stored energy and the engine will be cranked at high speed and at the same time immediately restore the energy in the spring, which can be set to any desired foot pound energy to be stored and then automatically locked and released from the engine, until the engine is again ready to be started.

In order to prevent breaking of this spring, it must be of the highest grade of spring steel.

Respectfully submitted,

A. W. Alquist

Can you make a practical application of this to a Ford

There are more than 50 patents issued

Address ready to
DISTRICT OFFICE, FINANCE DIVISION
BUREAU OF AIRCRAFT PRODUCTION
SECTION
300 Madison Avenue
New York City

WAR DEPARTMENT
BUREAU OF AIRCRAFT PRODUCTION
DISTRICT OFFICE, FINANCE DIVISION
NEW YORK

WGR/hb

August 20
1919 .

From: Wm. Guy Ruggles, 168 W 73 N Y .
To: Thomas A. Edison, Orange, New Jersey .
Subject: RUGGLES ORIENTATOR. *Don't say anything to him*

1. On January 19th, 1918 the United States Naval Consulting Board honored me to the extent of appropriating money to construct the first model of my invention, and demonstrate it.
2. *but I will run over when*
3. Many improvements have followed which are incorporated in the later models I have built for the Air Service. *I put an hour or 2 time -*
4. I am told you were keen to enter a motion picture theatre and remain while the indifferent pictures of this machine were shown .
5. The last of the machines I am building for the Army Air Service are now nearing the final stages of assembly. Would you care to come to the shop in Newark and see the last word in this new branch of science in actual operation before they are shipped away to go into service at more distant points?
6. Mr. Robins tells me he would like to join you if you have the time to spare, and bring other members of the Board.

Very sincerely yours,

Wm. Guy Ruggles
Wm. Guy Ruggles

(Reply attached)
Ask him what the machine is
~~of~~ I am not familiar
with all the things done by
the Consulting Board
E

August 28, 1919.

Mr. Wm. Gay Ruggles,
168 W 75th Street,
New York, N.Y.

Dear Sir:-

Mr. Edison has received your letter of August 20th, but says he is not familiar with all the things done by the Naval Consulting Board and would like you to advise him just what the machine is that you are writing about.

Yours very truly,

Assistant to Mr. Edison.

Call Address "Edison, New York"

*From the Laboratory
of
Thomas A. Edison,*

Orange, N.J. August 28, 1919.

Rear Admiral W. Strother Smith, U.S.N.,
Navy Department,
Washington, D.C.

My dear Admiral:

Herewith I am enclosing our Laboratory bill in duplicate for experimental work done by Mr. Edison for the period, May 31st, 1919, to July 31st, 1919, at cost, amounting to \$1,815.79.

Mr. Edison has certified the bill and duplicate, and your usual good attention toward receiving check for the amount will be appreciated.

I trust you are well, and with kind regards, remain,

Sincerely yours,

With meadowcroft
Assistant to Mr. Edison.

Enclosures - 2.

[ATTACHMENT/ENCLOSURE]

100-10221

WHEN REFERRING TO THIS BILL, MENTION THIS NUMBER:

THOMAS A. EDISON
ORANGE, N. J.

144



LABORATORY

NOTICE

Please do not alter the figures on this bill. If any errors or differences occur, kindly return for correction, so as to avoid obligation of account.
We do not insure delivery, or safe custody of goods, here are at your risk after shipment from our factory.
In case of loss or damage, make claim on carrier who has receipted for goods in first class order.
Send all direct to Charge, N.J. Office.
He, likewise, have authority to collect our accounts.

SOLD TO

United States Government,
Navy Department,
Washington, D. C.

TERMS:

SHIPPED TO

YOUR ORDER No.
OUR ORDER No.
SHIPPING No.

VIA

July 31st, 1919.

CASH PACKAGES

GROSS WEIGHT

POUNDS

Experimental work in Laboratory on devices listed herein over period May 31st, 1919 to July 31st, 1919 at cost.

Laboratory Order No.

Description

5005
5037
5599



\$2,150.55
250.00
84.77 = *blap*

\$1,815.79 *ref*

*15000
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I certify that the above bill is true and correct and that payment has not been received.

Thomas A. Edison

NAVY DEPARTMENT, AUG 29 1919

APPROVED:

REAR ADMIRAL, U. S. NAVY

Air Mail
DISTRICT OFFICE, FINANCE DIVISION
BUREAU OF AIRCRAFT PRODUCTION
SECTION
360 Madison Avenue
New York City

WAR DEPARTMENT
BUREAU OF AIRCRAFT PRODUCTION
DISTRICT OFFICE, FINANCE DIVISION
NEW YORK

August 29
1919 .

WGR/bh

From: Wm. Guy Ruggles, 168 W 73 N Y .
To: Thomas A. Edison, Orange, New Jersey.
Attention Mr. Mendocroft .
Subject: RUGGLES ORIENTATOR.

1. Your letter of August 28th is before me. I thank you for the courtesy .


2. This invention opens up the possibilities of an entirely new field. The process of systematically developing special faculties in man as a preparation for the rapid and safe assimilation of flying instruction seems to be as new as the invention .

3. The inclosed clipping from a recent issue of Aerial Age will give Mr. Edison a comprehensive idea of "just what the machine is that I am writing about ."

4. As there is nothing like it in any of the foreign countries, and his Board supplied me the money to build the first one, it occured to me that perhaps he would like to examine the latest model .

5. Please refer also to my letter of August 20 .

Very sincerely yours,


Wm. Guy Ruggles.

ADDRESS REPLY TO
THE SECRETARY OF THE NAVY
AND REFER TO INITIALS
AND NO.

20905-684

Op-14-B-ES 9/9

NAVY DEPARTMENT
WASHINGTON

SEP 10 1919

file
Y well

My dear Mr. Edison:

It is with great regret that I feel it necessary to inform you that the HAUOLI, S. P. 249, now detailed for certain experimental work under your direction, must be withdrawn from this detail and prepared for sale. This vessel is one of the very few which have not, as yet, been demobilized, and her retention in her present detail is no longer possible. It is my intention to direct the Commandant of the Third Naval District to decommission her and prepare her for sale on the 20th instant and I take this opportunity of giving you advance notice in order that you may remove from her such experimental apparatus that is not the property of the Government.

With conditions in the Navy as now exist, particularly as concerns paucity of personnel, it will not be possible to give you any assurance of the detail of a vessel to take the place of the HAUOLI.

I beg to extend to you now the thanks of the Navy for the efforts you have made to solve the difficult problems you have had in view while using the vessels which have been placed at your disposal, and I assure you that it is with sincere regret that I have felt impelled to make the decision which thus deprives you of the continued use of the HAUOLI.

Very sincerely yours,

Franklin D. Roosevelt
Acting Secretary of the Navy.

Thomas A. Edison, Esq.,
Orange,
New Jersey.

11/11

Sept. 15, 1919.

Hon. Franklin D. Roosevelt,
Acting Secretary of the Navy,
Washington, D.C.

Dear Mr. Roosevelt:

I have received your letter of September
10th.

As the "Hauli" has been constantly breaking
down, making it impossible to keep her running long
enough to finish any experiment, I agree with the idea
that the Government should dispose of her.

Since you do not volunteer to substitute
any of the other numerous vessels which the Government
owns and does not intend to sell, I infer that the
Bureau of Naval Operations desired that I should stop
any further experiments.

I will, therefore, remove the apparatus
immediately and close my connection with the Government.

Yours very truly,

HAA

[ATTACHMENT/ENCLOSURE]

Not sent

~~The enclosed letter~~
I am having
trouble at hand, I will
submit ^{the} experimental
apparatus not owned from the
highest ~~specimen~~ + the well
to (enclosed). 16th - The Garden
and Engine of the boat
has been in such a bad
condition ^{for a year} that I have never
been able to use her without
a great deal of sea-corn, although
^{to have paid for}
I have ~~tried~~ ^{tried} ~~many~~ ^{many} times -
she has ~~been~~ ^{been} in such a shape for the
last week.
I am glad you have taken
her over ~~for~~ ^{for}

[ATTACHMENT/ENCLOSURE]

I also understand that I am
not to do any special
Experiments for the Navy
which is quite satisfactory
to me ⁱⁿ respect

[ATTACHMENT/ENCLOSURE]

Dear Sir,

I have received your
letter of September 10th

~~and in reply to it I have~~

#3's like Harold has been

constantly breaking down,

making it impossible to

~~the~~ keep her running long

enough to finish any

experiment, which is at

repair station and ~~and has~~

been for some time.

Now I agree ^{with the idea} that the spec.

should dispose of ACC's

41 Since you do not volunteer,

~~any~~ ^{to} substitute ^{any} of the other

numerous vehicles

[ATTACHMENT/ENCLOSURE]

In which the use of a cow
and resort in and to
self. I infer that the
of those ^{or} ~~the~~ ^{persons} ~~persons~~ ^{across} ~~that~~ ^{they}
should stop any
further experiments
I will therefore sever
the apparatus and
close my communication
with the government.

Yours very truly

Sept. 15, 1919.

Rear Admiral G. E. Bard,
Navy Yard,
Brooklyn, N. Y.

My dear Admiral:-

By request of Mr. Roosevelt, Acting Secretary of the Navy, I am giving up the "Hauli", as the Government is going to sell her, and it looks as though I were about at the end of my work for the Navy Department.

You will remember that I had a motor boat fitted up with an electric motor and some of my storage batteries. You were kind enough to facilitate my getting this. I had contemplated making use of it in connection with my experiments on the "Hauli".

This motor boat is now at the Navy Yard, but I would like to send over and take the batteries out of her. Will you kindly let me know when it will be agreeable to you to have me send our men, and advise me as to where they should go and to whom they shall report.

With kind regards, I remain,

Yours sincerely,

P.S. I understand the above boat is known as Motor Sailor Boat No. 1206.

HAA

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, President
WILLIAM L. SAUNDERS, Chairman
BENJAMIN D. THAYER, Secretary
THOMAS ROBINSON, Secretary

OFFICE OF THE SECRETARY
13 PARK ROW, NEW YORK

October 8th, 1919.

Mr. Wm. F. Meadowcroft,
c/o Edison Laboratories,
W. Orange, N. J.

Dear Mr. Meadowcroft:

Enclosed please find copy of the very rough notes which Mr. Stretch took of my conversation with Mr. Edison. As Mr. Stretch had to take these notes under considerable difficulty during a running conversation between Mr. Edison and myself, which he could not very well interrupt, they are more or less fragmentary and inaccurate, but they may serve as a guide to some of the information which we would like to have for the book.

We would appreciate it if you would give us a description of the devices in the order of their importance, so that we may incorporate them in the book, and with such details as you may think we should have in order to make the matter clear to those reading the book.

As the book is nearing completion and is waiting to go to the printer, I would appreciate receiving this at the earliest possible time.

Yours very truly,
Clyde H. Scott
for NAVAL CONSULTING BOARD.

LMS:DC
encl.

[ATTACHMENT/ENCLOSURE]

- CHAPTER I - Organization
- II - Industrial Preparedness Campaign
- III - Fuel Oil
- IV - Ship Protection Committee
- V - Special Problems Committee
- VI - Laboratory
- VII - Functions of Various Organizations, etc.
- VIII- Report on new Naval Base, Pacific Coast
- IX - Inventions from the Public
- X - Meritorious Inventions from the Public
- XI - Branch Offices
- XII - Accomplishments
- XIII -
- XIV -
- XV - Conclusion

*Attach to
Capt. Scott's letter*

*This was the scope of the
proposed book, as given to me
by Capt. Scott, Oct 29/19 at
his office -*

October 30th, 1919

Hon. Josephus Daniels,
Secretary of the Navy,
Washington, D.C.

My dear Mr. Daniels:

There are two questions on which I would like to have your personal ruling.

(1) When I entered into the service of our country nearly three years ago in accordance with your wishes, you and I had an understanding that my work should be regarded as entirely confidential, and I promised you that no information should be given out by me to the press or to others. I have scrupulously kept the faith, and have always stated that by reason of an understanding between us I was not at liberty to talk of my work. Recently, a Capt. Lloyd B. Scott has seen me and said that he was requested and authorized by you to write up the history of the Naval Consulting Board, including the individual work of the members, for publication. He stated that Rear Admiral Smith had offered him such of my reports as are on file in your records, but he. (Capt. Scott) thought that I could furnish a more complete record and asked me to do so. I have had this material compiled. Capt. Scott tells me that while the book is to be published under your authority, it is not to be published as a Government publication, but by a regular book publisher and placed on sale. I am writing now to ask if the above is correct, and whether you desire me to furnish my material to Capt. Scott in accordance therewith.

(2) My second question is this: During the course of my work I prepared two charts showing graphically (a) the density of daily steamship traffic in and out of the ports of the British Isles, and (b) the same as regards the ports of the United States. These charts are the result of an immense amount of research and labor and I think they might be of some value to the Merchant Marine. Do you see any objection to my furnishing blue prints of these two charts to the Maritime Exchange and to Marine Insurance Associations, or to bodies similarly interested?

I am going to ask Mr. J.J. Butler to hand this letter to you in order that it may come to your attention soon, as Capt. Scott is anxious to have the material above mentioned.

Sincerely yours,

THE SECRETARY OF THE NAVY.
WASHINGTON.

November 4, 1919.

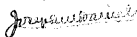
My dear Mr. Edison:-

I am in receipt of your favor of October 30th, in which you ask about the book which Captain Lloyd H. Scott is preparing. The Naval Consulting Board employed Captain Scott with my approval to write the history of the Naval Consulting Board since its organization. I agreed with Mr. Saunders it was a very good thing to put in permanent form a story of the organization of this Board, of its devotion to the country and its special contributions and the line of investigation which its members had pursued. My understanding was that Captain Scott was to interview members of the Board and otherwise obtain information that would make the book accurate and reliable, and in pursuance of this Captain Scott was to call on you. Captain Scott was, as I am informed, at one time in the army and he holds everything he receives in confidence and is esteemed as a reliable and capable man and a gentleman.

There is some confusion about what Admiral Smith offered Captain Scott. He gave him a list of the particular items of work upon which you have been engaged, according to information that is in the office of Admiral Smith, but he did not give him access to files of your correspondence. Such of these as you wish Captain Scott to see will be shown him upon your request.

It seems Mr. Saunders wishes Scribners to publish the work after it is approved by the Secretary of the Navy. Of course what you shall decide to give to Captain Scott I leave entirely with you.

Sincerely yours,



Mr. Thomas A. Edison,
Orange, New Jersey.

THE SECRETARY OF THE NAVY.

WASHINGTON.

4th of November

1 9 1 9

My dear Mr. Edison:

I have given a great deal of thought to the laboratory in the last month, and have carefully gone over the final report of the Naval Consulting Board, a copy of which I am enclosing for your ready reference.

This report is signed by Mr. Saunders as Chairman, and I am informed received a unanimous vote at one of the meetings. This report has been submitted to my technical advisors and approved by all of them. With the idea of concentrating work, I have directed the closing up of various outlying activities including the New London Experimental Station. The necessity, however, for systematic research and experimental work is apparent and under peace time conditions.

The location mentioned in the report is familiar to you, and seems to meet the greatest number of conditions. It is government owned land and under the jurisdiction of the Navy Department, so no formalities have to be observed. The purchase of land anywhere would not be authorized by Congress and no land can be purchased except by direct appropriation. The site is also in the District of Columbia and, considering past experience in conducting experimental work elsewhere, the laboratory will receive more substantial support here. So much other research work is done in the District that duplication of effort will be avoided and co-operation greatly effected.

The plans have been thoroughly discussed by the technical bureaus and, in addition to the general outline shown in the report, a pier leading to twenty-two feet of water is projected. During the war, considerable work was done in laying railroad

Mr. Thos. A. Edison, Nov. 4, 1919.

- 2 -

tracks and roads on the property for ordnance stores and the above mentioned pier is under contract in that connection, and the whole involves only a comparatively small sum out of the laboratory appropriation, and under the present conditions every item of economy must be observed.

With the laboratory here it will be accessible to a larger number of naval officers and experts in the Bureau of Standards and other scientific and practical men than can be permitted elsewhere upon government owned land and they can thus come much closer in touch with civilian scientists. I have directed that detailed plans be drawn up, but have not given publicity to this until I could acquaint you with all the arguments placed before me.

In your testimony before the Naval Committee you were evidently influenced by the conditions obtaining at that time, but I feel that you will agree with me that, while conditions have changed, the necessity of research still exists and that a close relationship between the naval and civilian scientist is worthy of encouragement.

I hope that you will approve of the Consulting Board's report, it has met with considerable praise, and will aid in the inauguration of an establishment you have so ably advocated. Will you please write me?

Sincerely yours,

Mr. Thomas A. Edison,
Orange, New Jersey.

(Enclosure)

November 7, 1919.

::::PERSONAL::::

Friend Daniels:

I have not changed my mind in the least about the location of the Laboratory. Nor have I changed my opinion that such a Laboratory should not be under the control of Naval officers, either directly or indirectly. I still think that the Secretary of the Navy only should have control through civilians. If Naval officers are to control it the results will be zero. This is my experience due to association with them for two years and noting the effects of the system of education at Annapolis.

When you are no longer Secretary and have returned to business, I want to tell you a lot of things about the Navy that you are unaware of.

Mr. Saunders' list of tools and the ideas he sets forth are absurd. He has no real ability relating to knowledge of the technique of subjects he talks about. He is a business man only.

I cannot believe that the Board voted unanimously, as stated to you. If they did, they did it from pure ignorance of the technical history of the Navy and of Naval officers, both of which I have laboriously studied.

I want to reiterate once more that around New York is the place of all others to have a creating and research Laboratory, entirely civilian, without control of Naval officers.

I do not believe that there is more than one creative mind produced at Annapolis in three years and this man, by the system employed, has not the slightest chance of ever being known to have this special ability. At the present moment there are probably not more than 500 really versatile creative minds in the whole population of the United States. If there is, their work never reaches the Patent Office or the technical publications. If the great Massachusetts

Institute of Technology, with 3,000 students, only produces one creative mind occasionally, how can one expect Annapolis to produce any, especially, as if one were produced, the Naval system prevents it from being found out.

Let me say that there is one Bureau and I think the only one at Washington that has functioned properly and produced valuable results during the war, and that is the Bureau of Standards. The head of this Bureau is a remarkable man.

If you still think you want the Laboratory at Washington and under Naval officers, go ahead and let the Naval Consulting Board approve of it under Saunders as Chairman, but please do not have my name connected with it, because it could just as well be left out without attracting any attention. I will not take the slightest offense.

My wife and I join in cordial regards to Mrs. Daniels and yourself.

Sincerely yours,

HAA

[ATTACHMENT/ENCLOSURE]

Personal

Friend Daniels

I have not changed my mind in
the least about the location of
the laboratory, ^{nor have I changed my opinion that} such a laboratory
should ^{not} be under ^{the} control of
~~any~~ Naval officers, either directly
or indirectly. ^{of which I think that} only the Secy of the
Navy ^{only} should have control through
Civilians. ^{If you do not} If
Naval officers are to control it
the results will be zero.
This ^{is} my experience due to
association ^{with them} Naval officers
for 2 years ^{in the} effects of the
system of education at

[ATTACHMENT/ENCLOSURE]

2

Innapolis and the men
~~themselves. Their ignorance of~~
~~all real knowledge, their~~
~~lack of~~ When you are no
longer Jey, and have returned
to ~~the~~ business I want to tell
you a lot of things about
the Navy ^{that} you are unaware
of. ~~Mr~~ ^{Mr} Saunders' list of
tools and ^{the} ideas ^{he sets forth are} ^{apparent.} ~~are~~ ~~ridiculous~~
He has no real ability ^{relating to} ~~to~~
knowledge of the technique of
subjects he talks about. He
is a business man only
~~I~~ ^{cannot} ~~do~~ ^{not} believe ^{that} the Board

[ATTACHMENT/ENCLOSURE]

3

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the technical history of the
Navy and of Naval officers,
both of which I ^{have} laboriously studied &
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& research laboratory, entirely
civilian, without control
of Naval officers -
There I do not believe that
there are more than two one
creative minds produced at
Annapolis. ^{in 3 years} & this ^{man} by the

[ATTACHMENT/ENCLOSURE]

System employed, has not the slightest
chance of ever being known to have
this specific utility x
~~It is to~~ At the present
moment there are probably
more than 500 really
versatile
creative minds in the whole
population of the US. If there
is, their work never reaches
the patent office or the technical
publications. If the Great
Mass Institute of Technology,
with 3000 students,
only produces one ^{creative mind} occasionally,
how can one expect summaries
to produce any, especially, as
if one ~~was~~ ^{was} produced, the
naval system prevents it

[ATTACHMENT/ENCLOSURE]

5-

from being found out - x
Let me say ~~that~~ that there
is one bureau ~~that~~ I think
the only one ^{at Washington} that has
functioned properly and
produced valuable results
~~that~~ during the
war, & that is the Bureau
of Standards. The head
of this bureau is a
remarkable man -

if you still think you
want the laboratory
at Washington & under
Naval officers, go ahead

[ATTACHMENT/ENCLOSURE]

6
+ let the Naval ^{Consulting} Board
oppose it under
Saunders as Chairman
~~but leave~~ but please do
not have my name
connected with it, because
it could just as well ^{be} left
out without attracting
any attention. I will not
take the slightest offence -

My wife and I give in cordial regards to
Respectfully yours & family and
yourself
J. G. 112

November 13, 1919.

Rear Admiral W. Strothers Smith, U.S.N.,
Navy Department,
Washington, D.C.

My dear Admiral:

Herewith I hand you in duplicate, Mr. Edison's final bill for the Laboratory cost of experimental work for the Navy Department, covering period August 1, 1919, to November 1, 1919, amounting to \$917.81.

I shall be glad if you will kindly give this your usual kind attention and have a check sent to me in due time.

With kind regards, I remain,

Sincerely yours,

Assistant to Mr. Edison.

Enclosures.

LLOYD N. SCOTT
COUNSELLOR AT LAW
83 WALL STREET
NEW YORK
TEL. HANOVER 7781

8

New York, November 28th, 1919

Thomas A. Edison, Esq.,
Edison Laboratories,
Orange, N. J.

Attention of Mr. Meadowcroft.

Dear Mr. Meadowcroft:

Under separate cover I am sending you
two rubber stamps and a stamp pad which you left with me on
Monday.

I have been to Scribner's and stamped all
the photos and blue prints with these stamps in accordance
with your request.

With kind regards,

Very truly yours,

Lloyd N. Scott

8300

Ricochet

Ballistics.

December 2, 1919.

Capt. Lloyd H. Scott,
63 Wall Street,
New York, N.Y.

Dear Captain Scott:

Allow me to acknowledge receipt of your letter of November 28th, and to thank you for your kind attention to the small matters which were left to be disposed of.

During our conversation on Monday of last week, you said you had been informed by Rear Admiral Earle that the Navy had a water-penetrating projectile which would proceed in a straight line under water and strike a target. If such is the fact, it is only justice to Mr. Edison to say that the Navy must have developed such a type of projectile since he suggested it early in the year 1917, and carried into actual practice on a small scale later in the same year.

Even as late as November, 1917, the Navy did not have such a shell. In that month Mr. Edison and I went to Rear Admiral Earle's office. During the conversation he told Mr. Edison that the Navy had a shell which would enter the water without ricochet, and described it as a blunt-nose projectile. Mr. Edison said he was perfectly familiar with that type of projectile, but it did not accomplish the results he had obtained. This blunt-nose projectile would enter the water without ricochet, but on going below the surface of the water it might go in any direction, - no one could tell in what direction, - whereas his (Mr. Edison's) type of projectile would strike the water, proceed under water in the direct line of fire and hit a target with destructive effect. Admiral Earle said he had not thoroughly understood this point before.

A few days later, on November 26, 1917, Rear Admiral Earle wrote to Mr. Edison, saying: "I shall be glad to test the shell you propose, and determine suitable ballistics for the same". In the same letter, Rear Admiral Earle also said: "It will give me pleasure at any time to show you the direction taken by the blunt-nose shell on striking the water".

In view of our conversa-

-2-

In view of our conversation, I think it is only proper that you should have the above for your own information.

Yours very truly,

Assistant to Mr. Edison.

NAVAL CONSULTING BOARD
OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, SECRETARY.
BENJAMIN D. THAYER, CHAIRMAN.
THOMAS ROBINSON, SECRETARY.

Dec. 13, 1919

Mr. Thomas A. Edison,
Orange, N.J.

Dear Sir:

There is enclosed herewith copy of resolution authorized at informal meeting of the Board held in New York, Dec. 12th.

On account of press of time will you signify your assent to this resolution by wire and also supplement this assent by returning the copy of the resolution signed by you together with any comments you wish to make.

Yours truly,


Secretary.

Robins-

Resolution as to increase of
Salary of Naval Officer.
approved -

3

December 15, 1919.

Mr. Thomas Robins,
Secretary, Naval Consulting Board,
13 Park Row,
New York, N.Y.

Dear Mr. Robins:

Mr. Edison received your letter of
December 13th, with the enclosed copy of Resolution
as to the increase of pay of Naval officers. I have
sent you the following telegram from him:

".....Resolution as to
increase of salary of Naval
officers approved.
Thos. A. Edison"

In addition, the copy of the Resolution,
sent to Mr. Edison, is herewith returned.

Yours very truly,

Assistant to Mr. Edison.

Enclosure.

Dec. 31, 1919.

W. L. Saunders, Esq.
11 Broadway,
N.Y.C.

My dear Mr. Saunders:

With reference to our recent conversation concerning Naval awards, I wish to make it clear to you that I would consider it most inappropriate for the award of the Distinguished Service Medal or the Navy Cross to be made to the members of our Board.

In the first place, the law, as I recall it, states that these awards were to be made to officers and men "in the Service". The members of the Naval Consulting Board, are not legally "in the Service." They have no commissions, rank or rating; they wear no uniform and as they draw no pay, they are not even in the Naval Service to the same extent as are the Secretary and Assistant Secretary of the Navy and the civilian employees of the Department. Therefore, I believe it to be entirely illegal for them to receive either one of these regularly established awards.

In the second place, these medals and crosses are recognized objectives and emoluments of the regular Naval career. They rightly belong to none but men who have thrown in their lot with the Navy. Their value would be lessened by their being awarded to civilians, and such award to civilians would reduce the number to be

distributed among Naval officers and men.

Although I feel that the services of the members of our Board have earned some suitable recognition, I do not feel, for the reasons stated, that we are entitled to either the Distinguished Service Medal or the Navy Cross, and I would return such award if it were made to me.

As to what a suitable recognition would be, I have given no thought. It might be an honorary commission properly cancelled, or a polite letter of thanks; or, it might be the acceptance of our recommendations as to the organization of a Research Bureau in the Navy to which would be assigned the operation of the Laboratory. There are lots of ways in which we might be recognized and pleased which would not bring down upon our heads the animosity of the Service, as certainly would be done by giving us medals and honors intended solely for its regular members. I do not feel that the Board as an organization has been a great success, or that as a body, it should be legalized or perpetuated, but its members have done some very valuable work at very great personal sacrifice. They have felt their own coward, and if they receive no other, the reflection will lie upon the Administration, rather than upon them.

If, as you say, you expect to discuss this matter with the Secretary, I hope that you will make it clear that at least one member of our Board would be as unwilling to accept an award which rightfully belongs to Naval officers and men, as he would be to accept a part of their pay or mess allowance.

Yours very truly,

THOMAS ROBERTS

**Naval Consulting Board and Related Wartime Research Papers
Subjects -- Experiments (1919)**

This folder contains correspondence, financial documents, and technical notes relating to research conducted by Edison on various projects for the U.S. Navy and U.S. Army through October 1919. Some of the documents pertain to an automatic star gauge developed to measure cannon bores. Other letters, exchanged with the office of the Chief of Ordnance, concern an inquiry about the authorization of payments to Edison. At the end of the folder is a statement of the total amount billed to the Army and Navy for each research project since the beginning of the war, along with lists of code designations and staff who worked on war-related research. The statement indicates that approximately \$107,000 of the \$238,000 grand total was billed for submarine detectors.

Approximately 40 percent of the documents have been selected, including all of the substantive correspondence, a small number of technical notes directly relating to Edison, and about half of the financial material. Unselected documents include calculations and drawings by other experimenters (most of whom are unidentified), various printed tables and specifications, payment forms issued by the Army and Navy in connection with Edison's expense claims, and correspondence about minor accounting questions handled by Edison's personal assistant William H. Meadowcroft and by Richard W. Kellow of the Secretarial Service Dept. of Thomas A. Edison, Inc.

REVISED

THOMAS A. EDISON
 ORANGE, N. J.
 LABORATORY.



SOLD TO

United States Government,
 Army Department,
 Washington, D. C.

THROUGH

YOUR ORDER NO.

OUR ORDER NO.

SHIPPING NO.

SHIPPED TO

VIA

January 31, 1919.

WHEN REFERRING TO THIS BILL,
 MENTION THIS NUMBER:

142

NOTICE

Please do not alter the figures on the bill. If any errors or differences arise, kindly return for correction, so as to avoid confusion of accounts.

We do not insure delivery or safe carriage of goods. They are at your risk when shipped.

In case of loss or damage, make claim on carrier who has received the goods in full clear order.

Send direct to Orange, N. J. Office.
 No salesman have authority to collect our accounts.

GLASS FACILLOXN

GROSS WEIGHT

POUNDS

Experimental work in Laboratory on devices listed herein over period of November 30, 1918, to January 31, 1919, at cost:

Laboratory
 Order No.
 600-10
 600-11
 5746

Description.
 Flating Searchlight Reflectors
 Automatic Star Gauge - Ordnance Dept
 Destruction of Wire Entanglements

.17
 1,285.99
195.79

1,481.95

I certify that the above bill is true and correct.

141

THOMAS A. EDISON
ORANGE, N. J.
LABORATORY.



SOLD TO

United States Government,
Navy Department,
Washington, D. C.

TERMS:

YOUR ORDER NO.

SHIPPED TO

OUR ORDER NO.

VIA

January 31, 1919.

SHIPPING NO.

GROSS WEIGHT

GROSS WEIGHT

FOUNDS

Experimental work in Laboratory on devices listed
herein over period November 30, 1918, to January
31, 1919, at cost:

Laboratory
Order No.

Description.

5005
5015
5632
5599
600-8

Submarine Detector
Phonograph Range Finder
Smoke Shell
Submarine Strategy Experiments
Special work by B. R. Silver

2,628.69
589.72
788.49
336.66
306.12

3,072.70

I certify that the above bill is true and
correct.

NOTICE

Please do not alter the figures
on this bill. If any errors or
distinctions arise, kindly return
for correction, so as to avoid
inconvenience of account.

We do not insure delivery, or
safe receipt of goods. They
are at your risk after shipment
from our factory.

In case of loss or damage,
make claim on carrier, who has
accepted for goods in first class
traffic direct to Orange, N. J.,
Office.

No salesman has authority
to collect our accounts.

WAR DEPARTMENT.
SIGNAL CORPS GENERAL SUPPLY DEPOT.
FORT WOOD, NEW YORK HARBOR.

SH/ED

Radio Sets

February 27, 1919

From: Supply Officer.
To: Thomas A. Edison, Orange, N. J.
Subject: Return of Property Issued on Memorandum Receipt.

6728

ATTENTION OF MR. W. H. MEADOWCROFT.

1. This office holds memorandum receipt dated March 10, 1917 signed personally by Mr. Edison for,-

2 Radio sets, table type 250 watt,
500 cycle, Nos. 46 and 47
2 Mats, radio type "M"
2 Radio motor generators, 110 volt, DC,
129118, 129119,

which was shipped to you on memorandum receipt.

2. It being assumed that the property under discussion has served the purpose for which it was issued, it is requested that it be returned and this office advised date and method of its return.

Mr. Edison
shall I look them up
and return them?
Measurements

Charles E. Coates
Charles E. Coates,
Major, Signal Corps.

They are in Galvanometer Room
say I am not through with them
if they could let me have
them a little longer I would
be obliged - E

March 10, 1919.

Major Charles E. Coates,
General Supply Depot,
Signal Corps,
Fort Wood,
New York Harbor, N.Y.

Dear Sir:-

I received your letter of February 27th, in regard to the two radio sets which were loaned to Mr. Edison March 10th, 1917.

Mr. Edison is spending a few weeks in Florida, and I sent your letter down to him for instructions.

I have just received a note from him stating that he is not quite through with these two radio sets, and he will be obliged if you can let him retain them a while longer.

Respectfully yours,

Assistant to Mr. Edison.

A/6728.

THOMAS A. EDISON
 ORANGE, N. J.
 LABORATORY



SOLD TO United States Government,
 Navy Department,
 Washington, D. C.

TERMS:

YOUR ORDER NO.
 OUR ORDER NO.
 SHIPPING NO.

SHIPPED TO
 VIA

March 31, 1919.

WHEN REFERRING TO THIS BILL
 MENTION THIS NUMBER.

157

NOTICE

Please do not alter the figures on this bill. If your gross or net amount is different, kindly return for correction, so as to avoid receipt of accounts.
 We do not insure delivery or safe coming of goods. They are at your risk after shipment from our factory.
 In case of loss or damage, make claim on carrier who has receipted for goods in first class order.
 Send direct to Orange, N. J., Ohio.
 No shippers have authority to collect our accounts.

CASH	PACKAGE	GRAND WEIGHT	POUNDS																						
				Experimental work in Laboratory on devices listed herein over period January 31, 1919, to March 31, 1919 - AS 9087																					
				<table border="1"> <thead> <tr> <th>Laboratory Order No.</th> <th>Description</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>5005</td> <td>Submarine Detector,</td> <td>\$2,564.55</td> <td></td> </tr> <tr> <td>5013</td> <td>Phonograph Range Finder,</td> <td>48.88</td> <td></td> </tr> <tr> <td>5699</td> <td>Submarine Strategy Experiments,</td> <td>832.15</td> <td></td> </tr> <tr> <td>600-8</td> <td>Special work by E. R. Silver.</td> <td><u>1,102.97</u></td> <td>\$4,428.55</td> </tr> </tbody> </table>	Laboratory Order No.	Description			5005	Submarine Detector,	\$2,564.55		5013	Phonograph Range Finder,	48.88		5699	Submarine Strategy Experiments,	832.15		600-8	Special work by E. R. Silver.	<u>1,102.97</u>	\$4,428.55	
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5699	Submarine Strategy Experiments,	832.15																							
600-8	Special work by E. R. Silver.	<u>1,102.97</u>	\$4,428.55																						
				I certify that the above bill is true and correct and that payment therefor has not been received.																					

ALL COMMUNICATIONS SHOULD BE ACCOMPANIED BY CARBON COPY AND ADDRESSED TO

TO INSURE PROMPT ATTENTION
IN REPLYING REFER TO

NO. 154
ATTENTION OF 316

WAR DEPARTMENT
OFFICE OF THE CHIEF OF ORDNANCE
WASHINGTON

TJG:MCM
Tel. Rm Br. 5571
D-2-302

April 2, 1919.

Mr. Thomas C. Wilson,
Orange, New Jersey.

Sir:

Referring to your voucher for \$1441.95 recently submitted, I am directed by the Chief of Ordnance to inform you that this office is having trouble in locating the authority on which to base this payment. Will you kindly send me copies of the orders referred to on which this work was performed? The order numbers referred to on your voucher are as follows:

500-10
600-11
5745

The above information is necessary in order to enable me to locate the responsible officer.

Respectfully,

D. J. CANNELL,
Lt. Col., Ord. Dept., U.S.A.

By: 

F. J. STEPHENSON,
Major, Ord. Dept., U.S.A.

April 4, 1919.

Lt. Col. O. J. Gatchell, U.S.A.,
Office of the Chief of Ordnance,
Washington, D.C.

Dear Sir:- Reference O.O. No. 154/316 Edison, T.A.:

Your letter of April 2d in regard to Mr. Edison's voucher for \$1451.95 has been received. Mr. Edison is in Florida and will not return until later in the month, but in his absence I can inform you that the authority for these expenditures was given by Secretary Baker more than a year ago.

Mr. Edison was at that time conducting some experiments for the Navy Department and Secretary Baker asked him by letter to conduct some other experiments for the War Department. No formal order was issued, but Mr. Edison carried on the work in accordance with Secretary Baker's letter. The amount charged is merely the exact Laboratory cost.

Two or three bills of a similar nature have been rendered to the War Department during the last year, and have been paid.

Yours very truly,

Assistant to Mr. Edison.

ALL COMMUNICATIONS SHOULD BE ACCOMPANIED BY CARBON COPY AND ADDRESSED TO

TO INSURE PROMPT ATTENTION
IN REPLYING REFER TO

C.O. NO. 158 *Edison, N.J.*
ATTENTION OF 1134

WAR DEPARTMENT
OFFICE OF THE CHIEF OF ORDNANCE
WASHINGTON

RJS/klr

April 16, 1919.

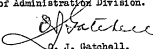
From: Ordnance Office, Chief of Administration Division.
To: Mr. Thomas A. Edison, Orange, New Jersey.
Subject: Voucher, \$1,451.95 - Reference O.O. P. 154/316.

1. Your letter of April 4th received.
2. It is noted that you state that no formal order was issued to you by the War Department for the work carried on in your laboratory, but that the work was done in accordance with Secretary Baker's letter. It is also noted that you state that other similar vouchers have already been paid.
3. A most careful search has been made of all records of the Ordnance Department and the records of the Office of the Secretary of War. The vouchers referred to have been found. These were signed personally by officers of high rank, - one of whom is in this country and the other abroad. No officer can be found in Washington who knows anything whatever regarding these transactions and is therefore willing to certify to the work.
4. Please appreciate that the Department is anxious to pay this account, but that we must fix some basis to which the certifying officer can refer as his authority. The voucher does not indicate, and no one in the Department seems to know whether any materials were produced as a result of this work or not, and, if materials were produced, their disposition is uncertain and the signing of the voucher establishes a property accountability which no officer is willing to assume without some knowledge of the disposition of these materials.
5. This explanation has been made at length in order that you may appreciate the necessity for obtaining more information regarding this work.
6. Will you kindly supply copy of any semblance of authority which you may have received? And, will you kindly indicate what disposition, if any, was made of these materials and mention any officer

Mr. Thos. A. Edison - Two.

connected with the Ordnance Department who, in your opinion, may have any personal knowledge of this transaction.

By order of Chief of Administration Division.


G. J. Gatchell,
Lt. Col., Ord. Dept., U.S.A.

G. J. G.

April 18, 1919.

Mr. G. M. Ryder,
Laboratory Office Manager:

I wish you would look into the details of the charges from January 31 to March 31, 1919 on Edison X Shop Orders #5699 and 600-8, the former amounting to \$832.15 and the latter to \$1182.97. From my knowledge of these orders, it does not seem to me that the charges should have amounted to so much during this period.

Yours for the Victory Liberty Loan,

R. W. Millow.

RM
Secretary.

RMW:FS

5699
Wair (Exp. Instrum) 100.54
Exp. (S. Hanjin) 54.50
Reg. & Lab. (W. Shop) 376.69
Overhead " 156.35
Labors 5.51
Baby & atten. 71.89
Overhead " 18.38
834.15

600-8
Transfer of B. R. Libor 948.44
Lab. Experiments 197.50
Overhead " 47.94
1293.93
Credit of overbilling
in favor of 90.96
1182.97

There is one thing
Mr. Edison they got that way
referred to the gauge
This relates to our
for measuring work of
last bill against the War
Commission sent to
Department for experiments.
Aberdeen
It amounts to only
\$1451.95.

I have drafted letter
for you to sign - It is
attached.

Meadowcroft

[ATTACHMENT/ENCLOSURE]

April 23, 1919.

From: Thomas A. Edison, Orange, N.J.
To: Ordnance Office, Chief of Administration Division.
Subject: Voucher, \$1,451.95, Reference O.O.F. 154/316.

1. Your letter of April 16th was received.
2. I can only say in regard to the above voucher that my Laboratory work was done in pursuance of personal talks I had with Secretary Baker and Brigadier General Crozier and letters subsequently received from them and from the Assistant Secretary of War.
3. I quite appreciate that the Department is desirous of paying the account, but must necessarily have the proper authority. If it seems desirable to withhold payment until the officers of high rank, mentioned by you, return to this country, I shall make no objection as I realize that payments of this kind must be properly authorized.
4. Let me add that the experimental work covered by this and previous vouchers did not entail the production of materials, but merely experimental devices which were valuable only as related to the particular experiments.
5. For your information, I enclose copy of correspondence passed with Secretary Baker, Brigadier General Crozier and Assistant Secretary Crowell.

A/7005.

P.S. 6. Allow me to add that there was one thing produced in my Laboratory experiments that has been delivered to the Officers at Aberdeen, namely, the automatic star gauge for measuring the bore of guns.

All communications should be accompanied by carbon copy and addressed to

Star gauge

To insure prompt attention,
in replying refer to

No. _____
Attention of _____

WAR DEPARTMENT
OFFICE OF THE CHIEF OF ORDNANCE

~~INSTRUMENT DIVISION~~

WASHINGTON
Technical Staff

WJB-EAD
Tel. War Br. 1174
E-1-213

FD-316

May 8, 1919

From: Ordnance Committee,
Technical Staff.

To: Edison Laboratories, West Orange, N.J.
Attention of Mr. Theodore M. Edison.

Subject: DECISION ON EDISON AUTOMATIC STAR GAUGE.

4/3.6
1919

1. The automatic star gauge originated by the Edison Laboratories and submitted to the Instrument Section of the Aberdeen Proving Grounds to be used in conjunction with the star gauging of guns has been investigated.

2. You are informed that the Ordnance Committee desires that no further work be done on the development of this gauge.

By order of the Chief of Ordnance.

C. L'H. Ruggles,
Colonel, Ord. Dept. U.S.A.
Chief of the Technical Staff.

By *R. I. Graves*
R. I. Graves,
Major, Ord. Dept. U.S.A.
Secretary, Ordnance Committee.

7168

*Just say we ~~not~~ only devised the gauge
made the sample sent at request of the
Aberdeen people ~~and~~ have done no
~~nothing~~ work since.*

709

May 15, 1919.

Col. C. L. H. Ruggles,
Chief of the Technical Staff,
Office of The Chief of Ordnance,
Washington, D.C.

Reference: O.O. War Dept. 413.6 / 168:

1. Your letter of May 8th has been received. I merely devised the gauge and forwarded the sample to your people at Aberdeen at their request. I have done no work on this matter since.

Yours very truly,

A/7168.

THOMAS A. EDISON
 ORANGE, N. J.
 LABORATORY.



SOLD TO

United States Government,

Navy Department,

Washington, D. C.

TERMS:

YOUR ORDER NO.

SHIPPED

TO

OUR ORDER NO.

VIA

May 31, 1919.

SHIPPING NO.

WHEN REFERENCING TO THIS BILL,
 MENTION THIS NUMBER:

156

NOTICE

Please do not alter the figures on the bill. In any errors or differences, kindly notify our attention, so as to avoid collection of accounts. If you are not insured against fire or theft, they are at your risk after shipment from our factory. In case of loss or damage, make claim on carrier who has receipted for goods in first class order. Remit direct to Orange, N. J., Edison.
 No salesman have authority to collect our accounts.

CARD PACKAGES

GROSS WEIGHT

POUNDS

Experimental work in Laboratory on devices listed herein over period March 31, 1919, to May 31, 1919, at cost:

Laboratory
Order No.

Description

5005 Submarine Detector
 5171 Hydrogen Fixation
 5699 Submarine Strategy Experiments

3,318.84
 12.00
 14.99

5,345.83

I certify that the above bill is true and correct, and that payment has not been received.

D

Radio

July 1, 1919.

Lieut. Merwin W. Arps,
Communication Officer, Radio Service, U.S.N.,
44 Whitehall Street,
New York, N.Y.

Dear Sir:-

In confirmation of Mr. Meadewcroft's telephone message to you this afternoon, I beg to report that the installation of the radio equipment here at my Laboratory has been completed by Chief Electrician Sweeney and Radio Operator Nelson:

I wish to use this equipment in connection with certain experiments that I am making at the request of the Secretary of the Navy, and I shall need an Operator for six or eight weeks.

In accordance with your request, I have asked Chief Electrician Sweeney to report to your office tomorrow, and in accordance with your permission Radio Operator Nelson will remain here until you detail some one to stay about six or eight weeks. It will be entirely agreeable to me if Radio Operator Nelson should be the man whom you detail for that service, but I would not assume to offer this as a request. I think that if this matter is brought to the attention of the Secretary of the Navy he will undoubtedly authorize the detailing of an Operator for the period above-mentioned.

Respectfully yours,

A/7472.



THOMAS A. EDISON
ORANGE, N. J.
LABORATORY

SOLD TO

United States Government,

Navy Department,

Washington, D. C.

TERMS:

YOUR ORDER NO.

OUR ORDER NO.

SHIPPING NO.

SHIPPED

TO

VIA

WHEN REFERRING TO THIS BILL,
 MENTION THIS NUMBER:

34

NOTICE

Please do not alter the figures on this bill. If any errors or differences exist, kindly notify our controller, so as to avoid confusion of accounts. We do not insure delivery or safe carriage of goods. They are at your risk after shipment from our factory. In case of loss or damage, make claim on carrier who has accepted for goods in first class cargo. Office: Edison direct to Orange, N. J. No. salesmen have authority to collect our accounts.

August 1, 1919.

CANS PACKAGES	QUANTITY	GROSS WEIGHT	FOUNDS	
Experimental work in Laboratory on devices listed herein over period May 31st, 1919 to June 30th, 1919 at cost:				
	<u>Laboratory Order No.</u>	<u>Description</u>		
	5005	Submarine Detector	\$1487.18	
	5699	Submarine Strategy	<u>13.38</u>	\$1500.56

I certify that the above bill is true and correct and that payment has not been received.

100-10428

THOMAS A. EDISON
ORANGE, N. J.
LABORATORY.



SOLD TO United States Government,
 Navy Department,
 Washington, D. C.

TERMS:

YOUR ORDER NO. SHIPPED TO
 OUR ORDER NO. VIA
 SHIPPING NO.

WHEN REFERRING TO THIS BILL,
 MENTION THIS NUMBER:

55

NOTICE

Please do not alter the figures on the bill. If any errors or differences exist, kindly return for correction, so as to avoid confusion of accounts.
 We do not insure delivery or safe carriage of goods. They are at your risk after shipment from our factory.
 In case of loss or damage, make claim on carrier who has receipted for goods in first class order.
 Remit direct to Orange, N.J. Office.
 No. accountants have authority to collect our accounts.

August 1, 1919.

CASH PACKAGES <input type="checkbox"/>	GROSS WEIGHT	POUNDS	
Experimental work in Laboratory on devices listed herein over period July 1st, 1919 to July 31st, 1919 at cost:			
<u>Laboratory Order No.</u>	<u>Description</u>		
5005	Submarine Detector		\$665.38
5037	Shell Trajectory		250.00
5699	Submarine Strategy		<u>98.16</u>
			\$915.23

I certify that the above bill is true and correct and that payment has not been received.

100-10411



THOMAS A. EDISON
ORANGE, N. J.
LABORATORY

SOLD TO

United States Government,
Navy Department,
Washington, D. C.

TERMS:

YOUR ORDER NO.
OUR ORDER NO.
SHIPPING NO.

SHIPPED TO
VIA

October 31, 1919.

WHEN REFERRING TO THIS BILL,
MENTION THIS NUMBER:

109

NOTICE

Please do not alter the figures on the bill. If any errors or differences exist, kindly return for correction, so as to avoid confusion of accounts.
We do not insure delivery or safe carriage of goods. Their loss or damage after shipment from our factory is the responsibility of the consignee. In case of loss or damage, make claim on carrier who has receipted for goods in first class order.
Remit direct to Orange, N. J., Office.
No advances have authority to collect our accounts.

CANON PARAGRAPHS	GROSS WEIGHT	POUNDS	
Experimental work in Laboratory on devices listed here- in over period August 1st, 1919, to November 1st, 1919, at cost.			
<u>Laboratory</u>	<u>Description</u>		
<u>Order No.</u>			
5005	Submarine Detector		761-17
5013	Phonograph Range Finder		31-56
5699	Submarine Strategy Experiments		2-98
600-12	Wireless		122-10
			917-01

I certify that the above bill is true and correct
and that payment has not been received.

December 18]

THOMAS A. EDISON. PERSONAL

SHOP ORDER
NUMBER

BILLED TO
OCTOBER
31, 1919

5005	Submarine Detector	107,859.21	
5009	Chalk Telephone	513.44	
5010	Submarine Funnel	1,916.50	
5011	DeForrest Wireless	3,776.68	
5012	Photography	151.47	
5013	Phonograph Range Finder	19,471.20	
5014	Telescope	497.72	
5016	Visibility	4,569.89	
5037	Shell Trajectory	4,770.33	
5044	Microphone	8,484.31	
5045	Gun Protection	334.78	
5047	Fire-extinguishing Apparatus	290.05	
5049	Battle Ship Fire Protection	668.61	
5068	Torpedo Motive Power	127.66	
5082	Extension Last	1,151.52	
5090	Submarine Hydrogen Detector	5,803.69	
5092	Submarine Light	126.44	
5094	Trench Material	53.73	
5107	Trench Fire	72.37	
5133	Visual Signalling	381.93	
5145	Submarine Gun	53.29	
5147	Visual Range Finder	614.25	
5153	Aeroplane Detection	4,931.79	
5171	Nitrogen Fixation	1,391.06	
5181	Missile	217.35	
5211	Fresh Water from Sea Water for Buoys	134.37	
5234	Signal Light Shutter	292.43	
5245	Aeroplane Bomb Thrower	873.94	
5251	Speed of Distant Ships Indicator	264.51	
5273	Periscope Sighting	1,485.00	
5291	Slow-burning Powders	276.37	
5292	Ship Protection against Torpedoes	167.58	
5450	Ship Protection against Torpedoes	109.67	
5452	Aeroplane Construction	12,913.91	
5452	Invisibility of Freighters	103.03	on water)
5454	Telescope (shield for eyes, for observation	183.69	
5536	Underwater Explosions	296.27	
5575	Color Interference on Painted Ships	1,444.35	
5583	Anthracite Coal Test	4,200.49	
5632	Smoke Shells	15,550.85	
5699	Submarine Strategy Experiments	26,348.97	
5746	Destruction of Wire Entanglements	149.56	
5765	Finely-divided form of Trinitrotoluol	37.21	
600-5	Location of Laboratory	46.51	
600-7	Protective Steel	2,230.46	
600-8	Experiments with Dr. Scheele	7.74	
600-9	Field Communication under Shell Fire	170.19	
600-10	Flaring Searchlight Reflectors	1,324.60	
600-11	Automatic Star Gauge (Ordnance Dept)	122.10	
600-12	Wireless		
			Total 6238,236.85

STRICTLY CONFIDENTIAL

PAGE
No. 1

EDISON PERSONAL (X) ORDERS

Serial No.	Lab. No.	DESCRIPTION—	CODE DESIGNATION
1	5005	1 Submarine Detector	SD
2	5009	2 Chalk Telephone	CT
3	5010	3 Submarine Tunnel	SF
4	5011	4 DeForest Wireless	DFW
5	5014	5 Photography	PTEY
6	5013	6 Phonograph Range Finder	PRF
7	5014	7 Telescope	TSP
8	5016	8 Visibility	VE
9	5037	9 Shell Trajectory	STJ
10	5044	10 Microphone	MPN
11	5045	11 Sun Protection	GUPN
12	5047	12 Fire Extinguishing Apparatus	FX
13	5049	13 Battle Ship Fire Protection	BSPFN
14	5068	14 Dropped Motive Power	TMP
15	5082	15 Extension Mast	EXMT
16	5090	16 Submarine Hydrogen Detector	SHD
17	5092	17 Submarine Light	SL
18	5094	18 French Material	TM
19	5107	19 French Fire	TF
20	5133	20 Visual Signalling	VS
21	5145	21 Submarine Sun	SG
22	5149	22 Visual Range Finder	VRF
23	5153	23 Aeroplane Detection	AD
24	5171	24 Nitrogen Fixation	NF
25	5181	25 Muzzle	M

EDISON PERSONAL (X) ORDERS.

SERIAL No.	LAB S.O. No.	DESCRIPTION		CODE DESIGNATION
26	5711	Fresh Water from dead Water for buoy	26	FW
27	5734	Signal Light Shutter	27	SLS
28	5745	Aeroplane Bomb Thrower	28	ABT
29	5751	Speed of Distant Ships Indicator	29	SIDS
30	5773	Periscope Lighting	30	P.S
31	5291	Slow-burning Powders (L.C.T.)	31	SOP
32	5292	Ship Protection against Torpedoes	32	TPK
33	5750	Aeroplane construction	33	AC
34	5752	Invisibility of Fighters	34	IF
35	5754	Telescopes (Device for observing on water; in sheets)	35	THO
36	5535	Destruction of Wire Entanglements	36	DWE *
37	5536	Underwater Explosions	37	UWE
38	5757	Color Interference on Painted Ships	38	CIPS
39	5783	Anthracite Coal Test	39	ACT
40	5637	Smoke Shell	40	SS
41	7699	Submarine Strategy Experiments (Stoughton, Wash, etc)	41	SSE
42	5765	Making a finely divided form of Amtritol dust	42	TT
43	5776	Destruction of Wire Entanglements	43	DWE *
44	600-6	Location of Laboratory	44	LL
45	600-7	Protective Steel	45	PVST
46	600-8	Experiments with Dr. Scheele - Amalgam, Silver	46	XDS
47	600-9	Field Communication under these conditions	47	FCs (Army)
48	600-10	Silver and copper testing searchlight reflectors	48	SLR
49	600-11	Automatic Star Range for Ordnance Dept	49	ASG (Army)
50	600-12	Revised		

Fred Ott ✓
Shaffner ✓
Moore ✓
Hamley ✓
Burns ✓
Silver ✓
Wolfe ✓
Wolf
Kilbrin ✓
McLanahan
Theodore
Warner
Mr. Macdowell
Allington
McCluer
Deans
Holland

Hollands 2 avols
Tom Tund 2 ad locust
Chas. Kally
Louie Ott
~~Chas~~
~~Kellon~~?

**Naval Consulting Board and Related Wartime Research Papers
Correspondence (1920)**

This folder contains correspondence and other documents pertaining to Edison's relationship with the Naval Consulting Board (NCB) during the postwar period. The correspondents include NCB chairman William L. Saunders and secretary Thomas Robins, Secretary of the Navy Josephus Daniels, Navy Dept. liaison W. Strother Smith, and President-elect Warren G. Harding. Included are items regarding Edison's offer to decline a Navy medal that Daniels planned to award him; his lack of interest in participating in further meetings about the proposed Naval Research Laboratory; his threat to complain to Congress about the Navy's rejection of new ideas and technologies; and his advice to Harding on what qualities the next Secretary of the Navy should possess. Other topics include the publication of Capt. Lloyd N. Scott's *Naval Consulting Board of the United States*; Edison's reluctant agreement to attend the NCB anniversary dinner; his response to an inquiry about Walter T. Scheele, a German chemist who worked during the war with Bruce R. Silver; and his correspondence with inventor and philosopher William A. Crawford-Frost about anti-torpedo nets.

Approximately 50 percent of the documents have been selected. The unselected items include unsolicited correspondence, routine administrative documents, and material pertaining to internal organizational matters not directly related to Edison.

January 3, 1920.

Friend Daniels:

I enclose copy of a letter I received today.

They tell me you have awarded me a medal. Probably that is the reason of this letter. Possibly this action will cause you trouble. If it does, withdraw it for any reason which sounds plausible. I really don't value such things and will not be in the least offended if you dispose of it in some way that will stop this squabble.

My experiences during the last 2½ years I was out of my laboratory has shown me that there are more small minded people in high positions than I was aware of.

With kind personal regards, I remain,

Sincerely yours,

Hon. Josephus Daniels,
Washington, D. C.

[ATTACHMENT/ENCLOSURE]

Personal
~~Confidential~~ -

~~Mr. [Name]~~

Friend Daniels,

I enclose a copy of a letter I received today.
They tell me you have ^{been} given me a medal.
Probably that is the reason of this letter, x
Possibly this action will cause you trouble, if it
does, withdraw it for any reason which sounds
plausible. I really don't value such things.
+ I will not be in the least offended, if you
dispose of it in some way that will ~~stop~~
this squabble. I My experience ~~for the~~
during the 2 1/2 years I codes out of
my laboratory has ^{shown} taught me that
there ^{are} more small minded people
in high positions than I was aware
of

Edison

IN REPLY ADDRESS
THE SECRETARY OF THE NAVY, INVENTIONS
AND REFER TO HIS

WSS:mw

NAVY DEPARTMENT
WASHINGTON

January 20, 1920

My dear Mr. Meadowcroft:

I enclose a registered letter sent to Mr. Edison to this office and opened it before I saw the word "personal" on the envelope and saw it to be of a personal nature. Practically a number of letters addressed to Mr. Edison on the subject of inventions are received here and acted upon.

With kindest regards, I am

Very sincerely yours,

W. Stoughton Smith
W. Stoughton Smith
Rear Admiral USN

Mr. Wm. Meadowcroft
Edison Laboratory
Orange, New Jersey.

Mr. Edison:

Isn't it a curious coincidence?
Here is a letter which should not
have been opened at Washington -
Meadowcroft

*What right has he to
open any letter addressed to me
or as ~~present~~ present of Consulting
board*

8633

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, CHAIRMAN.
BENJAMIN S. TRAVELER, SECRETARY.
THOMAS ROBINSON, SECRETARY.

OFFICE OF THE CHAIRMAN
11 BROADWAY, NEW YORK

Jan. 26, 1920.

8651
Thomas A. Edison, Esq.,
Chairman,
W. Orange, N. J.

Saunders

Dear Mr. Edison:-

I am advised by the Secretary of the Navy that he has had preliminary plans prepared for the proposed laboratory, on the basis of which it is proposed to issue at an early date specifications and invite bids for construction. *of the proposed laboratory*

He has directed Rear Admiral Wm. Strother Smith to bring these plans to New York and lay them before the Laboratory Committee of the Naval Consulting Board. *not the Civilian Secy of the Navy through him*

Admiral Smith will be in my office, No. 11 Broadway, New York, on Monday morning, February the 2nd next. *then I do not wish to have anything to do with it directly or indirectly*

He will have with him all the data and information which it is desired to submit to the Committee.

Secretary Daniels has asked that no publication of information in regard to this laboratory be made at present. When such publication is to be made he will release it from his own office.

I trust that you can make it convenient to be present on this occasion.

Yours truly,

W. L. Saunders

January 29, 1920.

Mr. W. L. Saunders,
Chairman, Naval Consulting Board,
11 Broadway,
New York, N.Y.

Dear Mr. Saunders:

I have received your letter of January 26th, in regard to the meeting at your Office for consideration of the preliminary plans for the proposed Naval Laboratory. I am not feeling quite well just now and cannot come over.

If it is proposed that Naval Officers shall have the management of the proposed Laboratory and not the civilian Secretary of the Navy, and through him civilians, I do not wish to have anything to do with it, directly or indirectly.

Yours very truly,

A/9651.

January 30, 1920.

Rear Admiral W. Strother Smith, U.S.N.,
Navy Department,
Washington, D.C.

My dear Admiral:

I received from you a few days ago a registered letter, which had been addressed to Mr. Edison at Washington, and which happened to be of a personal nature. Mr. Edison has asked me to say that if any further letters addressed to him are received in Washington, he will be glad to have them forwarded to him unopened. As the War is over, he thinks it is unlikely that there will be any further letters relating to inventions, but that some letters of a personal nature might be addressed to him at Washington.

With kindest regards, I remain,

Sincerely yours,

Assistant to Mr. Edison.

A/8699

THE SECRETARY OF THE NAVY.
WASHINGTON.

19th of February

1 9 21-0

Noted - 7/6/9

Meadowcroft

*Evidently Saunders - Specimen
is not going to prove it
H. W.*

My dear Mr. Meadowcroft:

I am in receipt of your letter of February 17th. Will you please thank Mr. Edison for having sent me the copy sent him by Mr. Saunders of the Minutes of a Meeting of the Laboratory Committee of the Naval Consulting Board. I am entirely in agreement with Mr. Edison that this laboratory, to have the largest results, must have the co-operation of the civilian engineers and scientists, and I am coming up to talk with him about it some day when I can do so.

Sincerely yours,

J. W. Taylor

Mr. Wm. H. Meadowcroft,
Assistant to Thomas A. Edison,
Orange, New Jersey.

IN REPLY ADDRESS
THE SECRETARY OF THE NAVY, INVENTIONS
AND REFER TO NO.
WSS:mw

NAVY DEPARTMENT
WASHINGTON

8

9136

March 3, 1920.

My dear Mr. Meadowcroft:

The Public Printer is pressing me for the original tracings of Mr. Edison's work for publication of the Naval Consulting Board book and I would hate to have this keep back the publication. Of course I will see that they are properly taken care of and returned after the printing office completes its preparation for duplication.

Everything else is waiting for this and I will appreciate it very much if you will do all you can to expedite their arrival here. I have ordered a small number of copies of the book specially bound for distribution to special people with the name embossed on the cover. Will you please let me know how many copies Mr. Edison wants, limit the number to a few and give me the names he desires placed on the cover for his mailing. I have already taken this question up with Mr. Saunders.

With kindest regards, I am

Very sincerely yours,

W. F. Frothingham

Mr. W. H. Meadowcroft
Edison Laboratory
Orange, New Jersey

*Two copies
will accompany
me*

Edison

*I have sent everything to him now.
Please let me know how many copies you
want and what names to be put on cover.*

Meadowcroft

S

March 4, 1920.

Rear Admiral W. Strother Smith, U.S.N.,
Navy Department,
Washington, D.C.

My dear Admiral:

Your letter of March 3d has been received just as I was preparing the tracings, etc., for forwarding to you. They are all going forward in two packages, by registered mail to you this afternoon.

Unfortunately, we are unable to find tracing of the shell, so I shall have to return the blue print to you. It is enclosed with the other material.

We never had tracings of the charts which show Mr. Edison's plans for strategic movement of vessels. When he was working on this subject down in Washington, he had photostats made of charts in blank and then placed his figuring and letters on them. I am, therefore, sending you the original of these in place of the photographs. The material being forwarded to you is as follows:

One blue print; one tracing containing curves and calculations, and tracings and charts numbered as follows: 1, 2, 3, 4, 5, 6, 7, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 29, 30, 31, 32, 33, 35-36, 37-38, 41, 42 and 45.

Mr. Edison will, of course, be very glad to have all these returned to him when the Public Printer is through with them.

I cannot tell you just now how many copies Mr. Edison will want to have, nor the names he desires placed on the cover. He is in Florida and it will take several days to get an answer from him. In writing to him today, I will ask him the question and communicate with you again as soon as I hear from him.

-2-

With kindest regards, I remain,
Sincerely yours,

Assistant to Mr. Edison.

NAVAL CONSULTING BOARD
OF THE UNITED STATES

THOMAS A. EDISON,
PRESIDENT,
WILLIAM L. SAUNDERS,
CHAIRMAN,
BENJAMIN B. THAYER,
VICE CHAIRMAN,
THOMAS ROSSIC,
SECRETARY.

OFFICE OF THE CHAIRMAN
11 BROADWAY, NEW YORK

Pink file March 9, 1920.

My dear Sir:-

The plans for the laboratory are progressing favorably. Admiral Smith and his assistant gained a great deal of information on their trip about the country, and it is now thought that preliminary plans for inviting bids for the erection of the buildings will be ready shortly. The Secretary of the Navy earnestly desires to push this matter and tells us that there should be no unnecessary delay.

Captain Scott has completed a book on the work of the Naval Consulting Board. It has been approved by the Secretary of the Navy, and it is expected that the book will be ready for distribution in May next. It is a large volume, containing numerous illustrations. De Lux copies will be sent to each member of the Board and to those who have been closely associated with us in the work, such as Major Whitehead, Colonel Mershon, etc. These special copies will also be sent to the members of the Cabinet, certain members of the Senate and Congress, Bureau Chiefs, Army officials and others.

If you have any suggestions to make, giving the names of persons to whom you think a special copy should be furnished, please let me have them.

The printing is being done at the Government Printing Office in Washington.

Very truly yours,

W. L. Saunders
Chairman.

Thomas A. Edison, Esq.,
Orange, N.J.

March 19, 1920.

Rear Admiral W. Strother Smith, U. S. N.,
Navy Department,
Washington, D.C.

My dear Admiral:

On March 3d you wrote to me asking me to expedite the forward of the original tracings, etc. of Mr. Misc's work for publication in the Naval Consulting Board book. These were just about ready and I sent them to you the day after receipt of your letter. I trust that the two rolls containing all this material were safely received, but have not heard from you to that effect.

In the second paragraph of your letter you asked me to advise you how many copies of the book Mr. Edison would want. I sent your letter to him down in Florida and have received his answer saying that three copies of the book will answer his purpose. I suppose that you can place his name on the cover of one of them. If, in addition, to these three copies I could have one for my personal library, I should be very glad to preserve it on account of my connection with all this work.

With kindest regards, I remain,

Sincerely yours,

Assistant to Mr. Edison.

A.

IN REPLY ADDRESS
THE SECRETARY OF THE NAVY
AND REFER TO NO.
755:1001

Inventions

NAVY DEPARTMENT

WASHINGTON

May 29, 1920.

My dear Mr. Meadowcroft:

I am sending you, under separate cover with a copy of this letter, that chapter of the Naval Consulting Board book that deals with the work of Mr. Edison.

This has been very carefully read and re-read and finally page proofed and illustrations inserted. Will you please get Mr. Edison to go over this and let me know if it is correct especially in regard to the illustrations and their titles.

I have had to reduce the number of illustrations to a minimum otherwise the book would be so bulky that it would be difficult to handle. I am not enclosing in this the illustrations of his strategic maps as they go in the appendix in folders.

I am enclosing one or two stray photographs that I can not attach to the written matter. If they are not important please say that they are to be omitted.

Return the enclosed pages to me as quickly as possible without removing any of the cuts as they are now attached, but write a clear description of what corrections should be made. It will be impracticable to add any material as that would require an entire reworking of the whole book, and there has been an immense amount of work done since it was delivered to this office.

The photograph on page 77 "Oleum Cloud Shells" I think, the marine picture, is alright. I do not think the other is correct but do not know where it should go. When you return this please mark it "Letter Mail, Urgent Rush".

Very sincerely yours,

Rear Admiral U. S. Navy.

Mr. Wm. H. Meadowcroft
Edison Laboratories
Orange, New Jersey.

June 1, 1920.

Rear Admiral W. Strother Smith, U.S. N.
Navy Department.
Washington, D. C.

My dear Admiral:

Mr. Meadowcroft has shown me your letter of May 29th, and the page proofs of the chapter of the Naval Consulting Board book that deals with my work. There are a few minor typographical errors, which have been corrected, but there is a very serious error on page 178. Under the head of "Water Penetrating Projectile", someone has added in the fourth and fifth lines the following: "The Bureau of Ordnance, Navy Department, already had such a shell which it was using". I wish to say emphatically that this statement is not correct, and it was not in the manuscript that I furnished.

When I proposed and devised the water penetrating projectile, the Bureau of Ordnance did not understand my explanation. I talked with Rear Admiral Earle in Washington and also exchanged a number of letters with him. He thought that my device was the same as the blunt nosed projectile which the Navy was then using.

The difference between the blunt nosed projectile and my projectile is that while the former will enter the water without ricochet, it is impossible to tell which direction it will go after it enters the water, but my type of projectile will enter the water in a straight line from the point of fire, and hit a submarine target previously placed in a predetermined position.

I knew all about the blunt nosed shell long before I devised my water penetrating projectile, and the matter has been very thoroughly thrashed out in the correspondence between Rear Admiral Earle and myself. I, therefore, beg to request that you will have page 178 corrected as I have indicated.

Yours very truly,

IN REPLY ADDRESS
THE SECRETARY OF THE NAVY, INVENTIONS
AND REFER TO NO.

WSS:mvv

NAVY DEPARTMENT
WASHINGTON

June 5, 1920.

My dear Mr. Edison:

Your letter of June 1 has been duly received and changes are made in the page proofs as desired by you.

I am very glad to find that all the illustrations were properly placed and properly titled. I wish I had as little trouble with all of the chapters as I had with yours. I hope you thoroughly understand that I am only doing the proof reading as far as the Navy Department is concerned and am not responsible for the original writing.

I will be glad to know the number of books you desire for distribution. The Department will receive 1000 copies and I have already arranged for the distribution for about 300 of these by direction of the Secretary. A few of them have a special binding and the names of members of the Board and other officials will be placed thereon.

As soon as all the corrections are made, I will return you your original tracings and copies.

Trusting that you are in your usual good health, I am

Very respectfully yours,

Mr. Thomas A. Edison
Edison Laboratories
Orange, New Jersey.

Thank you very
much would like 3 or 4. If you may
9

9630

58

NAVAL CONSULTING BOARD
OF THE UNITED STATES

THOMAS A. EDISON,
PRESIDENT,
WILLIAM L. SAUNDERS,
CHAIRMAN,
BENJAMIN B. THAYER,
VICE CHAIRMAN,
THOMAS RODGERS,
SECRETARY.

OFFICE OF THE CHAIRMAN
11 BROADWAY, NEW YORK

file
June 5, 1920.

Thomas A. Edison, Esq.,
Orange, N.J.

My dear Sir:-

I am advised from Washington that both our War and Navy Departments have adopted the policy pursued by foreign nations of keeping all information that might be of military value to their respective governments from the knowledge of any but bona fide citizens of the country in which the information originates.

I have officially advised the Navy Department that the Naval Consulting Board will observe this policy and that its members will see to it that students, or others, of the alien countries, shall not obtain, through members of the Naval Consulting Board, any information relating to naval practice.

Very truly yours,

W. L. Saunders
Chairman.

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON,
PRESIDENT,
WILLIAM L. SAUNDERS,
CHIEF CLERK,
BENJAMIN B. THAYER,
VICE CHAIRMAN,
THOMAS ROBINS,
SECRETARY.

OFFICE OF THE CHAIRMAN
11 BROADWAY, NEW YORK

June 14, 1920.

Dear Sir:-

The Naval Consulting Board book, written by Captain Scott, has gone to press. Arrangements have been made with the Public Printer at Washington to have the pages plated so that they can be reproduced at any time. The Superintendent of Documents has ordered 500 copies over and above the 1000 to be sent to the Navy Department and also 75 for distribution required by law of any public document. Of this number 55 are for foreign exchange.

Admiral Smith has taken the question up with the Director of Naval Intelligence and at his request and suggestion allotted 50 copies of the specially bound edition to be delivered to him for distribution through the different naval attaches to the sovereigns or highest naval official to which our officers are accredited, and the names will be embossed thereon by the office of Naval Intelligence after correspondence with the Naval Attaches as to the proper names.

500 specially bound copies have been ordered incorporating practically all of the names that have been sent in.

Yours truly,

W. L. Saunders

Chairman.

Thomas A. Edison, Esq.,

Orange,

N.J.

Dictated by W. L. Saunders
and signed in his absence,

ADDRESS THIS TO DEPT. OF
SIGNAL CORPS
401 4th Avenue, New York
NEW YORK

WAR DEPARTMENT
OFFICE OF THE ZONE SUPPLY OFFICER
NEW YORK CITY

Wireless

June 30, 1920

In answer refer to file No.: 7586 (Fort Wood) DD-SC

FROM: Depot Officer, General Supply Depot, New York, N.Y.
TO: Thos. A. Wilson, Orange, N.J.

ATTENTION: W.H. HILDEBRANDT.

SUBJECT: Radio Material

1. Receipt is acknowledged of your communication dated June 16, 1920, advising that Mr. Wilson is ready to return the following radio equipment, the property of the U.S. Government, namely:

- 2 Radio sets, table type, 250 watt, 50 cycle, Nos. 46 and 47
- 1 Kista, radio, type F
- 2 Radio motor generators, 110 volt, No 129115-129119.

which were issued on memorandum receipt March 5, 1917 by the Supply Officer, Signal Corps General Supply Depot, Fort Wood, N.Y.H.

2. It is requested that application for a government bill of lading to cover return of this material, giving amount, article, number of packages, cubic feet and weight, be made on the West and one Transportation Officer, Rail Transportation Division, Pier 3, Hoboken, N.J. It is also requested that the shipment be consigned to the Supply Officer, Signal Corps General Supply Depot, Ft. Wood, N.Y.H.

3. In reply please refer to date and file number complete including symbol letters affixed. This will insure prompt action.

By authority of the Depot Officer.

DISTRIBUTION DIVISION

Carl A. Hardigg,
Capt. C.M. C.,
In Charge Division

By: *J. E. Lynch*
J. E. Lynch,
In Charge Signal Branch

SL/od
Copy to Port and Zone Trans. Officer
Rail Trans. Div., Pier 3, Hoboken, N.J.

9822

July 7, 1920.

From: Thomas A. Edison, Orange, N. J. (Atten: Mr. Meadowcroft)
To: Depot Officer, General Supply Depot, New York, N. Y.
Subject: Radio Material:
Your File - 7586 Fort Wood DD-5C

1. Your letter of June 30th has been received. In this letter you request us to make application for a Government bill of lading to cover the return of this material, giving amount, article, number of packages, cubic feet and weight, such application being made to Port and Zone Trans. Officer, Rail Tran. Div., Pier 3, Hoboken, N. J.
2. Your letter has been shown to Mr. Edison. He wishes me to call attention to the fact that this radio material is not boxed for transportation, and, therefore, the above details could not be supplied.
3. Mr. Edison also wishes to call attention to the fact that there would be an expense in packing this material, and he has no account to which this expense could be charged. He thinks that after giving the Government two years of his time in making experiments without any charge for his services, he should not be called upon to be out of pocket for cash expenditures in packing and transporting material used in such experiments.
4. Mr. Edison thinks that the best way to handle this material is to send a truck to receive it at our door, and a competent person to superintend its removal without any expense to Mr. Edison.
5. You will undoubtedly be able to give any necessary instructions to do this from either Secretary Baker or Secretary Daniels.
6. It is suggested that this matter be attended to before July 28th, at which date the writer is going away for a vacation.

Yours very truly,

Assistant to Mr. Edison.

IN REPLY ADDRESS
THE SECRETARY OF THE NAVY, INVENTIONS
AND REFER TO NO

WSS:mv

NAVY DEPARTMENT

WASHINGTON

Dear Mr. Meadowcroft: I have been asked to find out, if possible, what connection a man called Dr. W. T. Scheele had with Mr. Edison in any of his experiments.

I find that on April 7, 1916, after Dr. Scheele had discussed with the representatives of Mr. Edison on a matter in connection with the manufacture of explosives, he was taken to Jones Point, Rockland County, in charge of a special agent of the Government. It is understood that arrangements had been made or were being made at that time with the Navy Department for the payment of at least a part of the expense connected with laboratory experiments.

I understand that payments were made by Mr. Bruce Silver. It seems that Dr. Scheele was operated on some time in September or October 1916 at Nyack, New York, and the hospital is looking to the Government for payment of his expenses.

If you can give me any information concerning this case, whether Dr. Scheele was being retained by the Government as far as your knowledge is concerned at that time, whether his expenses were being paid through your office or anything that you can tell me that will serve to either substantiate or disprove the hospital's claim I shall be obliged.

Please let me have this as soon as practicable and oblige.

Very sincerely yours,

Walter Finch

Mr. W. H. Meadowcroft
Edison Laboratory
Orange, New Jersey

9963

XX
S

*Meadowcroft
Scheele was a German spy - was
caught in Cuba & sent to Key West
Navy Yard by Navy Secret Service
before he confessed & gave US govt*

Some secrets in regard to Explosives
Scheele being a fine Chemist
Bruce Silver was one of my
Experimenters at Key West. The
Secret Service men requested that
they have Silver's services & he
was transferred. Then a secret
Lab was obtained by Naval
Secret Service around NY
some where & Scheele put
at work, Silver was also
employed that is all
I know of the case
You can ask Naval Secret
Service or Intelligence which
was in annex where I was
at Wexleyton

July 28, 1920.

Rear Admiral W. Strother Smith, U.S.N.,
Navy Department,
Washington, D.C.

My dear Admiral:

I showed your letter of July 26th to Mr. Edison, who wishes me to give you the following information:

Dr. Scheele was a German spy. He was caught in Cuba and brought to Key West Navy Yard by Naval Secret Service men. He believes he confessed and gave the U. S. Government some secrets in regard to explosives. Scheele was a fine Chemist.

Bruce Silver was one of Mr. Edison's experimenters at Key West. The Secret Service men requested that they may have Silver's services, and he was transferred to them. Then a secret Laboratory was obtained by the Naval Secret Service and located in the vicinity of New York somewhere. Scheele was put to work there and Silver was also employed at the same Laboratory. That is all that Mr. Edison knows of the matter.

He says that you might ask the Naval Secret Service or Intelligence Office, which was in the Annex when he was at Washington.

With kind regards, I remain,

Sincerely yours,

Assistant to Mr. Edison.

P.S. I heard a rumor that the Government published a book or pamphlet about Scheele. Possibly The Naval Intelligence Office may know about this.

W.H.M.

IN REPLY ADDRESS
THE SECRETARY OF THE NAVY, INVENTIONS
AND REFER TO NO

WSS:MW

NAVY DEPARTMENT
WASHINGTON

XX
-5
August 2, 1920.

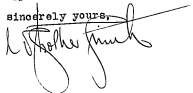
Dear Mr. Edison:

I am sending you an advanced copy of the book for your personal inspection and with the request that no publication notice be given of it until all the press have been supplied and notified. I expect to get a number of copies in about a week and will let the literary editors of the best papers have copies before issuing the book to any one else.

I have sent this rough bound copy to Mr. Saunders and to Captain Scott with the same request. The presentation copies will be issued after the copies are sent to the press.

Trusting the book will meet your approval, I am

Very sincerely yours,



Thomas A. Edison, Esq.,
Edison Laboratory,
Orange, New Jersey

Mr. Edison kept book at house
Haa

IN REPLY ADDRESS
NAVAL CONSULTING BOARD
NAVY DEPARTMENT
WSS:mw

NAVY DEPARTMENT
NAVAL CONSULTING BOARD OF THE UNITED STATES
WASHINGTON

WSS
September 5, 1920.

Dear Sir:

With the compliments of the Secretary of the Navy, also of Mr. Thomas A. Edison, President and Mr. Wm. L. Saunders, Chairman of the Naval Consulting Board, there is sent you, under separate cover, a copy of "The Naval Consulting Board of the United States" which gives in narrative form an account of the origin and achievements of this Board created in 1915.

Many of the most interesting inventions of the war, with illustrations, are set forth in this volume including the work of Mr. Thomas A. Edison who is president of the Board. The development of the listening devices which were so successfully used by our Navy to detect submarines are described in detail with illustrations.

The volume also sets forth the returns from the mobilization of the inventive talent of the country as well as the Industrial Preparedness Campaigns of the Board and the origin of the Council of National defense.

The Author, Lloyd N. Scott, was given free access to the records of the Board, the individual assistance of its members, and access to much valuable data in the Navy Department in the preparation of the book.

Captain Scott was attached to the Inventions Section of the General Staff, War Department during the World War and was liaison officer to the Naval Consulting Board and to associated War Committee of Technical Societies.

Mr. Thomas A. Edison
Edison Laboratory
Orange, N. J.

Very truly yours,

W. Strother Smith
W. Strother Smith,
Rear Admiral U.S.N.

*Under Mr. Edison
this letter is sent to all
receiving the special bound
copy with under inscribed
to the fund*

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT,
WILLIAM L. SAUNDERS, CHIEF CLERK,
BENJAMIN B. THAYER, THE SECRETARY,
THOMAS ROBIN, SECRETARY.

OFFICE OF THE SECRETARY

13 PARK ROW, NEW YORK

Sept. 14, 1920

Mr. Thomas A. Edison
W. Orange, New Jersey.

*Meadloft
I can hardly get
out of this -
S*

Dear Sir:

It has been suggested that the Board meet at dinner in New York on October 7th, the anniversary of its organization.

Particulars as to time and place will be sent you later, the purpose of this preliminary notice being merely to enable you to keep this date free.

Yours sincerely,

Thomas Robin
SECRETARY.

TR:AS

Sept. 29, 1920.

Mr. Thomas Robins, Secretary,
Naval Consulting Board,
13 Park Row, New York, N.Y.

Dear Mr. Robins:

Mr. Edison received your letter of
Sept. 25th in regard to the Dinner of the
Members of the Naval Consulting Board, and he
wants me to say to you that he will attend
the dinner if it is possible and if the
weather permits.

I am sending you herewith check for
eight dollars, in accordance with your letter.

Yours very truly,

224

Assistant to Mr. Edison.

NAVAL CONSULTING BOARD
OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, CHAIRMAN.
BENJAMIN B. THAYER, VICE CHAIRMAN.
THOMAS ROBINSON, SECRETARY.

OFFICE OF THE SECRETARY
13 PARK ROW, NEW YORK

Oct. 1, 1920

My dear Mr. Edison:

In acknowledging your check for \$8.00 covering the price of the dinner on October 7th, I want to let you know that Mr. Saunders has arranged to have a retiring room for your use adjoining the room where we shall have our dinner.

On reaching the Club you should ask to be shown to the private room reserved for Mr. Edison. There will be a sofa, and as no one else will know about this room, you will have a chance to rest while waiting for dinner.

Yours sincerely,



Mr. Thomas A. Edison,
West Orange, New Jersey.

Mr. Edison:

The dinner is next Thursday
at University Club - I will
remind you next Wednesday, the day before -
Mademoiselle, OK

October 8, 1920.

My dear Mr. Daniels:

I regret to learn that you have permitted the Naval crowd to have the Experimental Laboratory at Washington. You promised that you would not decide without giving me a chance to oppose it.

However, as it is done you must not be angry with me if I go to Members of Congress and give some facts about this affair and the utter inefficiency of the whole Naval establishment from a technical standpoint.

Yours sincerely,

[ATTACHMENT/ENCLOSURE]

Personal

My Dear Mr. Egan

refers to

I believe that you have
permitted the Naval Board
to have the ~~fact~~
Experimental Job at
Washington, You promised
that you would not
decide without giving me
a chance to oppose it.

However, as it is done
you must not be angry
with me if I go to members
of Congress + give some
facts about this affair + the

[ATTACHMENT/ENCLOSURE]

utter inefficiency of the
whole Naval establishment
from a technical
standpoint -

Yours sincerely
{

THE SECRETARY OF THE NAVY.
WASHINGTON.

12 October, 1920.

My dear Mr. Edison:

I am in receipt of your esteemed favor of October 8th and am distressed to know that you feel as you do about the location of the laboratory. You say I promised you that I would not locate it without giving you opportunity to oppose it. I beg to assure you that before contract is let I will take occasion early in November to see you, and at that time I would like to talk to you also about the other subject mentioned in your letter. I would see you sooner but I am leaving for a speaking trip and will be unable to do so until early in November.

Sincerely yours,

Jacques Haniel

Mr. Thomas A. Edison,
Orange, N. J.

IN REPLY ADDRESS
THE SECRETARY OF THE NAVY, INVENTIONS
AND REFER TO NO.

NAVY DEPARTMENT
WASHINGTON

WSS:mv

October 12, 1920.

My dear Mr. Meadowcroft:

I have a letter signed by Mr. H. G. Wolfe who states that he and Mr. W. H. Knierim were the ones who worked with Mr. Edison here in Washington and they would like a copy of the Naval Consulting Board book.

Mr. Wolfe informs me that Mr. Knierim contracted tuberculosis and died in Washington and that his mother would feel highly honored by receiving a copy of the book. If you agree, I will be very glad to comply with the request made in the enclosed letter, which please return.

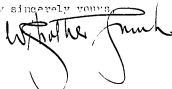
I expect to be in New York the latter part of November to meet my daughter who, as her mother informs me is now in excellent voice and I would like to know if the offer of Mr. Edison is still upon to have a record made for me.

Please handle this diplomatically and let me know as I do not desire to impose on Mr. Edison unless this would be perfectly agreeable to him.

With kindest regards, I am

Very sincerely yours

~~Recd~~



Mr. W. H. Meadowcroft
Edison Laboratory
Orange, New Jersey

Rear Admiral W. S. Strother Smith

October 16, 1920.

Rear Admiral W. Strother Smith,
Navy Department
Washington, D.C.

My dear Admiral:

I must ask to kindly pardon the delay in replying to your esteemed favor of Oct. 12th. Mr. Edison has had me so awfully busy the last ten days that I have been simply swamped. So please accept my apology.

In regard to the letter of Mr. Wolfe, I think it will be quite agreeable to Mr. Edison if you send him a copy. Personally I would certainly recommend it.

As to the copy for Mrs. Knierim, I am inclined to concur with Mr. Wolfe, but if you are short of copies and were obliged to decide between one and the other I should give a copy to Mr. Wolfe.

It will be entirely agreeable to Mr. Edison to have a record made for you of your daughter's voice, and he does not regard it as an imposition.

When your daughter is ready, please let me know a few days beforehand so that I can make the necessary arrangements.

With kindest regards, I remain,

Sincerely yours,

Assistant to Mr. Edison.

1407 Rutaw Place,
Baltimore, Md.
Oct. 26, 1920.

645

Mr. Thomas A. Edison,
West Orange, N.J.

*Did He get our form
letter - 10/26/20 date I sent
in name to Dr. Dunder
date he sent his
See attached*

My dear Mr. Edison:

The Literary Digest of October 23, 1920, describes, as one of your war inventions, a device to intercept torpedoes, consisting of a flotation tube carrying network to be fired from a trench mortar, or gun, the net to spread after the gun is fired and to sink in the water being supported by the flotation tube, the network consisting of steel rings of about one foot in diameter each and about a quarter of an inch in thickness, the object being to so spread these nets between the ship and the oncoming torpedo that the latter would be caught in one of the nets and deflected to go around in a circle instead of coming on towards the ship.

This is an exact description of an invention which I sent to you as Chairman of the Navy Consulting Board on Feb. 14, 1917, and which was referred to a suitable Committee of the Board for consideration.

The experts to which it was referred at first decided that it would not be of any particular value and took it for granted that I did not understand the nature of a torpedo and the difficulty of opposing it with nets, and, on my persisting, Mr. Addicks wrote me that Mr. M. B. Sellers, of 801 North Arlington Ave. Baltimore, who was himself a member of the Navy Consulting Board, would be able to make me understand it better.

Mr. Sellers came to see me and examined my model carefully, instead of showing me that I was wrong, however, he agreed with me perfectly in all of my contentions, and presented a favorable report to the Board, showing that:-

- 1- The device could be fired from a gun and dropped into the water at least 150 ft. from the ship.
- 2- That it would expand in the air.
- 3- That if the torpedo became entangled in the net, its course would probably be altered.

Thereupon I received another letter from Mr. Addicks saying that Mr. Sellers had authority to go ahead and do as he saw fit with my invention. Further enquiry by Mr. Sellers among the officials in Washington, however, convinced him that, while the device might be workable, yet, from a tactical standpoint, it would not be of value on account of the difficulty of discerning the wake of the torpedo, which, at that time, was all we had to go upon.

Mr. Thomas A. Edison-----2.

Since then the invention of a listening device which would enable those on a ship to hear the approach of a torpedo 4,000 yds. away completely alters the whole matter and removes the only objection urged against this invention, for there would be abundance of time while the torpedo was travelling a small part of this distance to shoot so many of these nets in its path that it would stand a poor chance of getting through. It should be remembered that if, on the first alarm, the bow of the ship is turned away from the direction of the sound, the nets would only be required to protect the stern and a part of the broadside, and the gunners, being on the lookout, would be apt to see the wake, so that in addition to shooting the nets in a general direction, some could be shot directly in the line of the wake, always allowing, of course, for the torpedo being about 150 ft. ahead of its wake.

I worked hard over this device and I would like to know that what I did might contribute, in any future war, to lessen the danger from submarines. Would you mind therefore letting me know:-

1- Did the writer of the article in question merely make a mistake and give you credit for an invention that was entirely mine?

2- Did you, independently of me, work out a device somewhat similar to mine? If so, I would be greatly interested to know how you worked it out. In my device there were two nets at right angles to each other. Only the lower third, approximately, of the flotation tube went inside the gun and all the network was outside the gun, the longitudinal being held out by springs which, upon release by the shot, carried the lower end of the net along to the bottom of the tube. The transverse net was spread by two arms hinged to the top of the tube with powerful springs at the junction. Before firing, these arms were held down by a ring. After firing, the arms remained down so long as the projectile was moving rapidly, being kept down by the force of the air, but as the projectile began to go slowly the arms flew up and spread the transverse net. Unless there are two nets at right angles to each other the device is of little value as it might fall into the water in such a way that its axis would be parallel to the course of the torpedo, but with two nets at right angles to each other, no matter how it happens to fall, there will be a large expanse of net opposed to the torpedo. I am curious to know whether you worked it out in any better way.

3- Did you take my invention and experiment with it so that the result was a joint invention, partly yours and partly mine?

Yours faithfully,
Wm. A. Crawford Frost

I never received any communication sent to the house they were received by a common place. I never thought of it. I have forwarded to Admiral Smith at 10, Avenue d'Orleans, Paris, 7^e arrondissement, every thing which is in the file. The former tube, I have given to Messrs. Perrier a very low price, about 100 francs.

You could get a question put by me. I think as the details necessary to me.

[ATTACHMENT/ENCLOSURE]

Mr. Edison:

This is a curious
case of two inventors working
simultaneously on same thing.

See my further memo
following the letter.

Very sincerely,
W. H. C. Brown

You will note by his questions
he is quite reasonable.

[ATTACHMENT/ENCLOSURE]

Mr. Edison:

This man sent in his invention as he states, but you did not see it, nor hundreds of others that came in at the same period.

We had a form letter that we sent to these inventors. See copy following this memo.

I have drafted out a letter which you will find following next paper.
Meadowcroft,

[ATTACHMENT/ENCLOSURE]

(COPY)

Feb. 14, 1917.

Mr. W. A. Crawford Frost,
Sheldon Pl.,
Windsor Hills, Baltimore, Md.

Dear Sir:

Your recent favor has been received. We beg to say that Mr. Edison is working night and day for the Government and cannot possibly spare the time to examine suggestions or inventions offered in connection with matters of National Defense. He does not even see his regular mail for sometimes a week at a time.

He has, therefore, directed that communications of this kind be returned to the writers, with the suggestion that they communicate direct with Mr. Thomas Robins, Secretary of the Naval Consulting Board, 15 Park Row, New York City.

We, therefore, return your communication herewith.

Yours very truly,

Edison Laboratory.

W. H. M.

(over)

[ATTACHMENT/ENCLOSURE]

(COPY)

May 14, 1917.

Hon. Josephus Daniels,
The Secretary of the Navy,
Washington, D.C.

REPORT NO. 37

My dear Mr. Daniels:

I have engaged a larger boat for Submarine experiments. It will be ready about the middle of this week. I will equip it with some of my latest apparatus, and after some experiments at the Hook I shall probably cruise off New London to catch any Submarine that might come out and submerge.

I am experimenting on a device for protecting armed merchant ships from torpedos. These experiments are showing good results.

If the apparatus is for actual work, it consists of a tube $5/8$ " steel, 20 feet long, 15 inches in diameter, mounted to turn and be elevated like a gun. Into this I place a small flotation tube 25 feet long over which is wound a net of 1 foot mesh made of $1/4$ " gauge of very fine steel wire. The net is coated each side with thin canvas. It resembles a large window curtain. There are other minor details at each end. When the net strikes the water it unwinds and extends downward 30 feet. The powder used will be very slow burning of special character to give a mean effective pressure possibly of 200 pounds per inch. Part of the net overhangs the tube.

From experiments here we think we can deliver this net at least 950 feet from the boat. Several of these tubes can be mounted together or used separately. The idea is, that if the torpedo is seen advancing towards the boat, several nets can be thrown in its path giving sufficient retardation that it will stop or be so delayed as to miss. These net rolls do not tumble, but hit the mark with remarkable accuracy. I am constructing a $1/2$ size tube. Present testing with 1" tube.

Yours very truly,

November 2, 1920.

Mr. W. A. Crawford Frost,
1407 Eutaw Place,
Baltimore, Md.

Dear Sir:

I have received your letter of October 26th, which has been read with much interest.

It is quite true that the time mentioned I was Chairman of the Naval Consulting Board, but I took no part whatever in the office details. I was working day and night for two years on a large number of special problems which were given to me by the Secretary of the Navy.

Hundreds of suggestions came to my Laboratory through the mail, addressed to me, but I did not see any of them. I directed my Secretary to prepare a form letter and return all these communications to the writer with an explanation, and suggesting that they communicate with Mr. Thomas Robins, Secretary of the Board, at 13 Park Row, New York. My Secretary tells me that you received one of these form letters from my office, and your communication was returned to you therewith under date of February 14, 1917. I had never seen you in communication at all, in fact knew nothing whatever about it or its contents. It was attended to in the regular clerical routine of my office.

It is my impression that after communications were received by the Naval Consulting Board at 13 Park Row they were assigned to Committees, and then forwarded to Rear Admiral W. Strother Smith at Washington.

If my recollection is correct in regard to my conception of a plan of obstructing torpedoes with nets fired by guns everything went in the firing tube. I used miner's powder of a very low grade and slow burning. I did not patent any of the devices which I originated for the Government.

I think you could get a good patent on your device, that is to say, on the details necessary to make it practicable.

Yours very truly,

[ATTACHMENT/ENCLOSURE]

Suggested Letter

2

Mr. N. H. Graupner, Trust
1407 Eutaw Place
Baltimore, Md.

Dear Sir:

I have received your letter of October 26, which has been read with much interest. You and I have experienced one of the coincidences that happen occasionally in regard to inventions, where two persons unknown to each other have worked on a similar invention.

It is true that at the time mentioned I was Chairman of the Naval Consulting Board, but

I took no part whatever in its office details. I was working day and night on a large number of special problems given to me by the Secretary of the Navy. Hundreds of suggestions came to addressed to me through the mail, but because I was so busy I did not see any one of them. I directed my Secretary to prepare a form letter and return all communications to the writers with an explanation and suggestion that they communicate with Mr. Thomas Robins, Secretary of the Board at 13 Park Row, New York.

[ATTACHMENT/ENCLOSURE]

3

I find that you received one of these form letters from my office, with which your communication was returned to you under date of February 14, 1917. I had never seen your communication at all, ~~and~~ in fact, I never knew anything about it or its contents. It was attended to in the regular clerical routine of my office.

As a matter of fact, I independently conceived the idea of obstructing torpedoes with nets fired from guns, and on 1917, sent a communication to

4

Washington in regard to my experiments. For your information I will quote from same as follows:

(Copy marked part of attached letter to Mr Daniels)

Trusting that the above will explain matters to your satisfaction, I remain

Very truly yours

THE SECRETARY OF THE NAVY.
WASHINGTON.

5th of November
9 2 0

Receiving my most distinguished
Council for time as the Department
of the Navy
766

Friend Danah

In my opinion you should not permit any money to be expended on this laboratory but have Appropriation revert to the Treasury - (I think)

My dear Mr. Edison: The Naval Consulting Board

Referring to your recent communication with reference to the Experimental and Research Laboratory for which Congress has made appropriation: Bids have been received by which we can erect the necessary buildings for the sum of \$652,711.00. The bids were made upon a design approved by the Naval Consulting Board, and all this is along the lines of your early suggestion. We have the land at Bellevue; it is near the Department; near the two proving grounds and the gun factory; the Bureau of Standards; the Bureau of Mines laboratory, and other scientific institutions. We own the land and we have no money with which to purchase land elsewhere. If we should have to purchase the land we would not have the money to build the laboratory. The money has been appropriated by Congress and unless we spend it at the place where we have the land and where it can be utilized by the Department and the civilian scientists and inventors and engineers, we will lose the laboratory altogether. I believe that under these circumstances you will feel that it is better to build the laboratory, which you were the originator, at this place rather than not to have it at all or to wait until Congress meets when we may be denied the money to construct it.

Therefore, I earnestly request your cooperation in carrying forward the original idea which you proposed at the first meeting of the Naval Consulting Board. It is my idea that as head of the Naval Consulting Board we should look to you for guidance and leadership in the work which is to be undertaken for such laboratory. I had hoped to have the opportunity of seeing you and talking with you about this matter, but I have been so pressed that I have not been able

who want a soft position, I am going to fight this in Congress. You will see next summer & you will see that come on our coming trip.

You threaten to become Navy official
I shall endeavor to have the
of public money + a Commission
I shall endeavor to have the
of public money + a Commission

Many have expressed something I know well know
about I never have approach
on the matter of a general thing
I know well know
I know well know
I know well know

Mr. Thos.A.Edison, Nov.5,1920.

- 2 -

to get out of the city, and I do not feel like asking you to come to Washington, although if you can come and go over the site I feel sure that, under the circumstances, you will readily give us the benefit of your valued assistance.

I am, with sentiments of esteem and high regard,

Sincerely yours,

Mr. Thomas A. Edison
Orange, New Jersey

November 8, 1920.

Friend Daniels:

I have received your letter of November 5th. In my opinion, for your own reputation, you should not permit any money to be expended on this Laboratory as proposed; but the money should be allowed to revert to the Treasury.

While the Naval Consulting Board may have approved something I know nothing about, I have never approved either the design, the location, or the method of administration. If it is carried out as proposed I shall consider it another useless expenditure of public money and a continuous liability and expense without any probable return.

You are obliged to listen to many naval officers who want a soft position. I am going to fight this in Congress if necessary.

Next Summer you will be free and I want you to come with us on our camping trip. I know you will enjoy it.

As the diplomats say, receive my most distinguished consideration.

Very sincerely yours,

November 8, 1920.

My dear Robins:

I suggest that you note the article on "Stability of Ships," in the Scientific American for November 6, 1920, and notice how Taylor tried to crawl out of the Eagle boat comedy after he was warned repeatedly by civilian constructors that the boats were bound to be unstable, and that the noise of internal combustion motors would make them so that they could not be used.

This latter protest was from the New London scientists, yet he rebuffed them with brutal indifference and said he understood his business.

Think of us taxpayers with a man like this building present Navy, using \$800,000.00, and never went to sea.

We might get him to run the new Research Laboratory approved by the Naval Consulting Board.

Sincerely yours,

[ATTACHMENT/ENCLOSURE]

Robbins -

Made Article on
Stability of Ships in
Scientific American
Nov 6 1920 -

✓ See how Taylor tries
to crawl out of the
Eagle Boat Comedy after
he was warned repeatedly
by Civilian Constructors
that the boats were
bound to be unstable
✓ that noise of internal comben-
stions would make ~~so~~
~~much noise that they~~
^{them so they}
couldnt be used this

letter protest from the
New London Scientists
yet he rebuffed them
with brutal indifference
+ said he understood
his business -

✓ Think of us tax
payers with a man
like this building
present Navy using
\$800,000 dollars +
never went to sea

Σ
We might get him to run the
New Naval Research Lab - approved
by the Naval Consulting Board

THE SECRETARY OF THE NAVY.
WASHINGTON.

McClecraft hold this -

November 19, 1920.

My dear Mr. Edison:

I am in receipt of your esteemed favor. I have awarded the contract for the laboratory and am in entire harmony with your view that there must be in order to fulfill the purpose for which the appropriation was made perfect cooperation between civilians and naval officers, and as to the plan of doing it, in my annual report I am saying there must be civilian direction and I hope this civil direction will be undertaken under such plans and policies as you will outline. We will take this matter up fully, and I assure you that I believe as much as you do that while the bureaus of the Navy must be locked to for large and responsible duties in equipment in the lines of carrying on and finding new and better ways, that we must depend very largely upon civilian inventors and engineers. I do not think we will have the least trouble about arranging this, and I would like you to work out a plan for such organization and management.

With sentiments of esteem and high regard,

I am

Sincerely yours,

J. P. Munroe

Mr. Thomas A. Edison
Orange, N. J.

*Mr. Edison:
The Saunders interview
produced some results.
McClecraft*

November 23, 1920.

My dear Mr. Daniels:

Mr. Edison usually replies so promptly to your letters that I presume you are wondering why you have not heard from him in answer to your important letter of November 19th.

He had been struggling with a severe cold for two or three days, and on the evening of the day you wrote he went home a little earlier than usual and he has not been down since. His cough grew more troublesome. The doctor and Mrs. Edison prevailed on him to stay in the house and to give up attention to business matters for a few days.

I have just returned from seeing him at his house. He is very much better and quite cheerful, but the doctor has persuaded him to remain in the house until after Thanksgiving and to let business matters rest until then. I thought I would let you know about this, so as to account for the few days delay in his reply to your letter.

Yours very truly,

Assistant to Mr. Edison.

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT,
WILLIAM L. SAUNDERS, CHAIRMAN,
BENJAMIN B. THAYER, VICE CHAIRMAN,
THOMAS ROBINSON, SECRETARY.

Meadocraft

I think there is a ^{word} error but I can't remember

To the Members of the Naval Consulting Board:

it - call you Σ

Dear Sirs:

The Navy Department has decided to issue a second edition of the History of the Naval Consulting Board, and at the request of Captain Scott I am sending out this circular letter in order that our members may have an opportunity of notifying Captain Scott of any changes or corrections which they would like to have made in the book.

While I do not know the date when the book will go to press, it is my belief that the edition is called for to satisfy an immediate demand, and that, therefore, any members who wish to act upon the above suggestion should communicate with Captain Scott within a very few days. He should be addressed as hitherto, Capt. Lloyd N. Scott, 63 Wall Street, New York City.

truly yours,
THOMAS ROBINSON
SECRETARY.

Mr. Edison:

I did not recall any error, and I have looked over the book again but do not find any error.

Wentworth

OK say no correction

W

1052

December 11, 1920.

Capt. Lloyd N. Scott,
63 Wall Street,
New York, N. Y.

Dear Sir:

Mr. Edison received a letter from Mr. Thomas Robins stating that the Navy Department has decided to issue a second edition of the history of the Naval Consulting Board, and asking members to notify you of any changes or corrections to be made in the book.

Mr. Edison and I looked over the part relating to his work once more and desire to inform you that no changes or corrections are suggested.

Undoubtedly you have already noticed one little typographical error in the word "anchors" on the third line from the bottom, Page 164. The "E" may be deleted.

Yours very truly,

Assistant to Mr. Edison.

1052

December 13, 1920.

Hon. Josephus Daniels,
Navy Department,
Washington, D.C.

My dear Daniels:

After considering the subject from every point of view I have come to the conclusion that I would prefer not to be connected in any way with the new Experimental Laboratory. I am convinced that it will ultimately be controlled by Naval Officers; that its position at Washington will always be a handicap, and that it will be an expense to the Government without producing any practical results.

Sincerely yours,

[ATTACHMENT/ENCLOSURE]

~~Ernest~~
up a little
maintaining
1/2

My Dear Sam

I have after considering
it in every point come to
the conclusion that I do
not want to be connected
in any way with the
New Experimental Laboratory
as I am convinced that
it will ultimately be
controlled by Naval
officers that its position
at Washington will
always be a handicap
& that it will be an
expense to the Government
& being practically ^{no value} ~~no value~~

DEPARTMENT OF THE NAVY.
GENERAL BOARD,
WASHINGTON.

DEL.

December 14, 1920.

My dear Mr. Edison:-

The Target Practice Office has asked me to ascertain if you have finished with the following confidential publications which were loaned to you on October 27, 1919:

Register No.

- 91 - Report of Battle Practice, Spring, 1914.
- 89 - Report of Elem. and Div. Practices, 1914-15.
- 357 - Report of Battle Practice, Spring, 1915.
- 298 - Report of Elementary Practice, 1915-16.
- 64 - Report of Battle Practice, Spring, 1916.
- 32 - Report of Short Range Battle Practice, 1916-17.
- 91 - Report of Battle Practice, Spring, 1917.

They explained that these volumes were taken from a set which remains incomplete so long as they are out and that they would appreciate their return when you are quite finished with them.

With kindest regards,

Yours sincerely,

Jamie Butcher

Thomas A. Edison, Esq.,
Orange, N. J.

1090

ask Butcher. to see Mr Daniels & tell
him I have a set as above & they
want them returned & ask him
if he personally cant get me a set
& send to me so I can return the set I have
that I have a set may be of value to him
after he leaves the Navy & some Contrabandaries

December 17, 1920.

Friend Daniels:

I was pleased to note the hot shot you fired at the General Staff idea on pages 200 to 210 of your Annual Report, just received.

Possibly it is too late now, but if you could get Congress to pass a bill permitting the Secretary of the Navy to employ civilian technical engineers and experts as advisers on technical questions it would improve the Navy one hundred percent in the course of time.

With cordial regards, I remain,

Very sincerely yours,

[ATTACHMENT/ENCLOSURE]

Forced Daniels -

I was highly pleased at
the hot shot you fired
at the General Staff idea
p 200 to 210 of your report
just received -

It is probably too late
now but if you could
get Congress to pass a
bill permitting the Secy

of Navy to employ
~~for consultation~~ Civilian
Technical Engineers +
Experts as advisers on
technical questions.
It would improve the
Navy 100% in time,
and ~~and~~ ~~improving~~
~~your~~ ~~interest~~ ~~case~~
~~the~~ ~~idea~~

5

December 17, 1920.

My dear Mr. Butler:

Mr. Edison received your letter of December 14th concerning the confidential publications loaned to him, by the Target Practice Office.

He has requested me to ask if you will kindly see Secretary Daniels personally and tell him that Mr. Edison ~~wants~~ the publications mentioned in your letter and that the Target Practice Office wants to have them returned. Mr. Edison wishes you to ask Mr. Daniels if he personally cannot get Mr. Edison a set of these reports for his own personal use, so that he can return the set he now has.

Mr. Edison asks you to please tell Mr. Daniels that the fact of Mr. Edison's having a set of these reports may be of value to him (Mr. Daniels) after he leaves the Navy, in case some controversy arises.

With kindest regard, I remain,

Yours sincerely

1090

Assistant to Mr. Edison.

THE SECRETARY OF THE NAVY.
WASHINGTON.

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December 22, 1920.

My dear Mr. Edison:

I thank you sincerely for your letter of December 17th, and your suggestion is an admirable one, and if I were to be in office longer I should address myself to it with great earnestness. I hope my successor will do so.

Sincerely yours,

J. P. Daniels

Mr. Thomas A. Edison
Orange, N. J.

December 28, 1920.

Personal

Hon. Warren G. Harding,
United States Senate,
Washington, D.C.

My dear Sir:

During the War I was intimately associated with our Navy as President of the Naval Consulting Board of the United States. I operated several experimental ships at sea, and have familiarized myself with Naval technique and personnel. What I learned is very disquieting when I think of the future.

As you will soon appoint a Secretary of the Navy, I hope you can find a man about fifty years of age who is purely a civilian and who has the technical knowledge of an Engineer or who will be authorized to retain outside Engineers for consultation. This for reasons you can easily imagine.

Yours very truly,

[ATTACHMENT/ENCLOSURE]

Warren G. Harding
Marion, Ohio

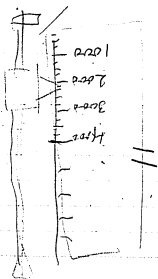
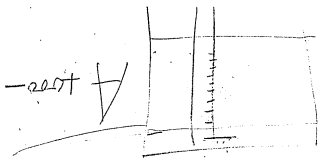
Personal

During the war I was ultimately
connected with our Navy
as chief of the NC Board, & operated
several Experimental Ships at Sea
(what I ~~operated~~ ^{operated} & have
familiarity ^{personally} with the
technical ^{of the} - what I
learned is very disquieting
when I think of the future

As you will soon appoint
a Secy of the Navy,
I hope you can ~~see~~ ^{see} you
find a man who, ^{is} is a
pure Civilian who has the
technical knowledge of an
engineer or who would be

[ATTACHMENT/ENCLOSURE]

challenges to retain outside Engineers
for Consultation, ~~to Contact~~ for
reasons you can easily imagine



$$\begin{array}{r} 1492 \\ 1062 \\ \hline 430 \end{array}$$

1000

49

38

DEPARTMENT OF THE NAVY.
GENERAL BOARD.
WASHINGTON.

December 28, 1920.

My dear Mr. Edison:-

I showed Mr. Daniels your letter of December 22nd, requesting copies of the reports on Battle Practice, etc., subsequent to those of the Spring of 1917.

On this letter I had prepared an endorsement, which he signed, directing the Office of Gunnery Exercises and Engineering performances to send you a complete set for your personal and confidential use. This letter I then took in person and arranged for the books to be sent you by registered mail.

The Secretary asked me to convey to you his very best regards, and permit me to join in wishing you a very Happy New Year.

Yours sincerely,

Jamie Butler

**Naval Consulting Board and Related Wartime Research Papers
Correspondence (1921)**

This folder contains correspondence and other documents relating to Edison's diminishing involvement with the Naval Consulting Board (NCB). The correspondents include outgoing Secretary of the Navy Josephus Daniels; J. Jarvis Butler of the Navy Dept. General Board; NCB chairman William L. Saunders and secretary Thomas Robins; and Edison associate Miller Reese Hutchison. Included are letters pertaining to Edison's desire to resign from the NCB pending its adoption of a plan for a Naval Research Laboratory that he opposed; the final months of Daniels's term as Secretary of the Navy in the Wilson administration; Edison's refusal to attend the NCB annual dinner; and his interest in acquiring government publications on banking and currency, which were sent to him by Butler. Many of the letters were written by Edison's personal assistant, William H. Meadowcroft.

Approximately 50 percent of the documents have been selected. The material not selected includes additional dinner invitations that Edison declined, along with personal correspondence between Meadowcroft and Butler, who appear to have been close family friends.

D
1921 NCB

January 6, 1921.

Mr. J. Jarvis Butler,
104 Bradley Road,
Cherrydale P.O., Va.

My dear Mr. Butler:

"Once more unto the breach dear friends"

(If you don't remember who wrote this ask me and I
will tell you.)

Referring to the above I am coming with
another request from Mr. Edison, and that is that
you would kindly get for him the reports of the
Comptroller of Currency for 1914, 1915, 1916, 1917,
and 1918.

I trust you are all well that you all en-
joyed your Christmas festivities. I suppose Grandma
had a good time with the kiddies.

With kindest regards to you and the whole
family, I remain,

Sincerely yours,

P.S. By the way, let me thank you for that daily
calendar pad which arrived safely.

[ATTACHMENT/ENCLOSURE]

4846

Meadeaft

Write Butler to
get Reports of
Controller of the
Currency for

1914 15 16 17

18-~~19~~

Edwase

Barclay 8600

NAVAL CONSULTING BOARD

OF THE UNITED STATES

OFFICE OF THE SECRETARY

13 PARK ROW, NEW YORK

THOMAS A. EDISON,
PRESIDENT.
WILLIAM L. SAUNDERS,
CHAIRMAN.
BENJAMIN B. THAYER,
VICE CHAIRMAN.
THOMAS ROBINSON,
SECRETARY.

Jan. 24, 1921.

Mr. Thomas A. Edison,
President,
Naval Consulting Board,
Orange, New Jersey

Dear Sir:

At the request of the Secretary of the Navy, a special and important meeting of the Naval Consulting Board, will be held in Washington, at ten o'clock in the morning, on Tuesday, February 1st.

The purpose of this meeting is to go over the plans of the Research Laboratory, to visit the site, and to discuss and endeavor to determine a line of policy for the operation of the Laboratory. Other subjects will also be brought up.

The Secretary of the Navy will be present and wishes to express to the Members of the Board his lasting appreciation, and his sincere hope that they will continue after he goes out of office, to work along the line of study and experiment and investigation, as in the past.

Please reply by wire to the Secretary's office, 13 Park Row, stating whether you will be able to attend the meeting.

Yours very truly,

W. L. Saunders
CHAIRMAN. *per J.P.*

January 25, 1921.

Mr. Thomas Robins,
13 Park Row,
New York, N.Y.

My dear Robins:

Referring to the telephone conversation you have had with Mr. Meadowcroft to-day, my attitude towards the proposed Naval Experimental Laboratory is shown by the enclosed copy of a letter which I wrote to Secretary Daniels on December 13, 1920.

I shall not attend the meeting on February 1st.

Yours very truly,

January 25, 1921.

Hon. Josephus Daniels,
Secretary of the Navy,
Washington, D. C.

Dear Mr. Daniels:

I feel that the time has arrived for me to sever my connection with the Naval Consulting Board of the United States, and, therefore, tender my resignation, to take effect at once.

Yours very truly,

THE SECRETARY OF THE NAVY.
WASHINGTON.

26th of January
1 9 2 1

My dear Mr. Edison:

I am in receipt of your favor and it distresses me very much and I earnestly hope that you will not insist upon it. My feeling about the Naval Consulting Board and Laboratory has always been that when it is opened and ready for work, the person who is the head of it shall be a civilian. Men capable of research work are very rare and we ought to find such a man who can not only stay a year or two, as a naval officer could, but can stay for a long time and organize it upon a basis where the best research minds of America in civilian life would give their thought and their service under the direction of the civilian head. And in the same way the chiefs of the technical bureaus, the engineers and construction officers, and the scientific men of the Navy should also work together with the civilians; but that it is better to have a civilian head. That has always been my idea and I believe I have obtained it from you.

Always, with my warm regards,

Sincerely your friend,

J. Hammond

Mr. Thomas A. Edison
Orange, New Jersey

P.S.-- My wife joins me in greetings and good wishes and sincere friendship to you and Mrs. Edison.

THE SECRETARY OF THE NAVY.

WASHINGTON.

Wheat
Hope me something - 2 March 1921.

My dear Mr. Edison:

As I am leaving Washington after eight years of service as Secretary of the Navy, I can not go home without sending you a line of appreciation for your helpfulness and friendship.

With my good wishes, I am

Sincerely yours,

Joseph Daniels

Mr. Thomas A. Edison,
Orango, N. J.

March 7, 1921.

Friend Daniels:

Although you have not yet had time enough to recover your nerves after your eight years of arduous labor as Secretary of the Navy, I shall miss my guess if you are not glad to turn your back on the maelstrom of conflicting interests and cross purposes. Let me congratulate you on the fact that you have preserved your health through it all, and that you are now your own boss.

Our association in the last few years leaves a pleasant remembrance with me, and I shall hope some day to meet you again in private life.

Thanks for your note of the second of March. It was good of you to remember me.

With kindest regards to you and your wife, I remain,

Sincerely yours,

Hon. Josephus Daniels,
Raleigh, N.C.

NAVAL CONSULTING BOARD OF THE UNITED STATES

THOMAS A. EDSON, PRESIDENT
WILLIAM L. SAUNDERS, CHAIRMAN
BENJAMIN B. THAYER, VICE CHAIRMAN
THOMAS ROBINSON, SECRETARY

11 Broadway,
New York, N.Y.,
August 9th, 1921.

3570

My dear Sir:

Mr. Daniels, former Secretary of the Navy, is writing a book on "Our Navy in the World War". He wants to make up a chapter on the Naval Consulting Board. He wants this to be "one of the best chapters".

He says: "What I need is a clear and succinct statement of what was done in the war as to submarine detection, the aerial torpedo and other experiments and inventions. Will you not see such members of the Board as you deem necessary and have this succinct and correct summary written?"

It is my purpose to aid Mr. Daniels as much as possible in this and to outline a statement of the work of the Board. Will you not aid in this by dictating a letter to me stating in general terms what you believe to have been the usefulness of the Board in connection with the war?

Mr. Daniels hopes to be able to get this by the twentieth of this month.

Anything you send will be much appreciated, and thanking you in anticipation, I remain,

of which you are favored
truly yours,

W. L. Saunders
Chairman.

I cannot very well write such a letter, My deafness prevented me from presiding at the Board's meetings & Mr. Saunders took my place.

I hope you have nearly all the work I did was presided by the Board

Thomas A. Edson, Esq.,
100 West Orange,
N.J.

August 15, 1921.

Mr. William L. Saunders,
Naval Consulting Board
of the United States,
11 Broadway,
New York City.

Dear Mr. Saunders:

I have received the circular letter you sent
around to the members of the Board.

I cannot very well write such a letter as you
ask. I worked alone, and an account of nearly all the work I did
was published by the Government in the book on the work of the
Naval Consulting Board. You are quite familiar with this book.

My deafness prevented me from presiding at the
Meetings of the Board, and therefore you, as Chairman, took my
place.

Yours very truly,

EDI PHONED/P

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, SECRETARY.
BENJAMIN B. THAYER, CHIEF CLERK.
THOMAS ROBINS, SECRETARY.

OFFICE OF THE SECRETARY

13 PARK ROW, NEW YORK

Aug. 17, 1921

Mr. Thomas A. Edison
Orange, New Jersey.

Dear Sir:

I am returning herewith some photographs
which you loaned to Captain Scott some time ago in
connection with his preparation of the History of the
Board.

Yours very truly,

Alice M. Sullivan
Secretary to Mr. Robins.

Ryan
File — *764*

P
1921

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, President
WILLIAM L. SAUNDERS, Secretary
BENJAMIN D. THAYER, Chairman
THOMAS ROBINSON, Secretary

OFFICE OF THE SECRETARY
13 PARK ROW, NEW YORK

Oct. 11, 1921

Mr. Thomas A. Edison,
West Orange, N. J.

Dear Sir:

Put me out 4

Your attention is called to the following resolution passed at the meeting of the Naval Consulting Board held Nov. 16, 1918:

"RESOLVED, that no matter what happens, until all of us die we hold a dinner once a year on the Anniversary either of the Declaration of Peace or of the signing of the Armistice."

As certain other functions will be held on the evening of Armistice day, it has been decided to hold our meeting on Thursday, November 10th. The dinner will be held at the University Club, 5th Ave. & 54th Street, at 7.30 P.M. The charge will be \$6.00 per plate.

I sincerely hope that you will attend the dinner and I would ask you to kindly fill out and return the enclosed postcard.

Sincerely yours,

Thomas Collins
SECRETARY U.S.

TR:AS

30996

October 16, 1921.

Mr. Thomas Robins, Secretary,
Naval Consulting Board,
13 Park Place, New York City

My dear Mr. Robins:

Mr. Edison wishes me to acknowledge receipt of your note of October 11th concerning the Annual Dinner of the members of the Naval Consulting Board.

He says it is impossible for him to make engagements so long ahead. Beside, the severe business depression has laid an additional load on his shoulders. He is busy day and night and he is trying to avoid making any engagements that will divert his attention from his work.

Therefore he feels he will have to forgo the pleasure of participating in the Dinner.

Yours very truly,

Assistant to Mr. Edison.

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, CHAIRMAN.
BENJAMIN B. THAYER, THE CHAIRMAN.
THOMAS RODIN, SECRETARY.

OFFICE OF THE SECRETARY

13 PARK ROW, NEW YORK

Oct. 31, 1921

To the Members of the Naval Consulting Board:

Dear Sirs:

It has been decided to have our annual dinner at the Army & Navy Club instead of at the University Club as previously announced. You are therefore requested to note that the dinner will be held at 7.30 P.M. on the evening of November 10th, at the Army & Navy Club, 122 Central Park South.

Up to this date the returns are as follows:-

WILL ATTEND DINNER	WILL NOT ATTEND	NO ANSWER RECEIVED
McCabe. Addicks Arnold Coffin Emscot Hatchison Larkin Miller Rikor Robins Saunders Sperry Sprague Thayer Whitney	McCabe. Brunton Edison Hunt Webster	McCabe. Beekland Craven Lamme Sellers Woodward

*Weslett
Shopping out*

Owing to the difficulty which I had last year in obtaining tickets for the Army & Navy football game, and the fact that only four of our members went to the game, I am not attempting to secure tickets for this year's game.

Yours truly,

Thomas Rodin
SECRETARY.

TR:AS

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON,
PRESIDENT,
WILLIAM L. SAUNDERS,
SECRETARY,
BENJAMIN D. THAYER,
VICE CHAIRMAN,
THOMAS ROBINSON,
COUNSELLOR.

OFFICE OF
MILLER KENNETH HUTCHISON, R. E. P. D.,
MEMBER AND ASSISTANT TO THE PRESIDENT
EDISON LABORATORY
ORANGE, N. J.

November 3, 1921.

Hutch-
Dear Mr. Edison:

*Can't come as I am
going to Chamber Concert
& Garry's*
Won't you please change your mind and attend
the Annual Dinner of the Naval Consulting Board on the
evening of November 10th?

At our last meeting, after the signing of the
Armistice, I introduced the resolution that we should
get together, once each year until, through the elimina-
tion of Father Time, we all "cross the river." I know
how much you dislike to come to New York, and how little
you get out of a social function of any kind; but this
Board was built around you and without you present the
affair will be a failure.

~~It~~ It happens only once a year, and it would be
over by ten o'clock.

An additional reason: One hundred of us chipped
in \$1,000 each and established an Army and Navy Club in
New York, at which our Army and Navy officers can have
headquarters when in the city. As you know, their
salaries are very inadequate, and hence their inability
to belong to clubs requiring considerable annual dues.
We are looking for life members to the club at \$1,000 each.
These members are, of course, selected with a great deal
of care. The advertising the club will receive through
this dinner of the Board will put it on its feet financially.

I know how you feel about some Army and Navy
officers, but they are not all that way, and, after all,
we owe them quite a debt of gratitude for the services some
of them performed overseas.

Please come.

Yours sincerely,

Thomas A. Edison, Esq.,
Orange, New Jersey.

MRR/MB

Hutch
4234

November 7, 1921.

Mr. Miller Reese Hutchison,
235 Broadway, New York City.

My dear Mr. Hutchison:

Your letter of November 3rd was received and I put it in Mr. Edison's Mail Bag. He has read it and wants me to say to you that he cannot possibly attend the Annual Dinner of the Naval Consulting Board. He has a positive engagement for the same day that was made over a month ago, and this will prevent him from participating in the Naval Consulting Board dinner.

Yours very truly,

Assistant to Mr. Edison.

Virginia,
Arlington, November 23, 1921.
*I will always keep
him in mind - E*

Dear Mr. Mesdowcroft:-

Do you think there might be a job for me at Ansole Shoals in case Mr. Ford takes over the works?

I have been thinking of the possibility ever since negotiations between Mr. Ford and the War Department have been given publicity. Today's papers carry a story about Mr. F's visit to Mr. Edison and their plans to go over the ground together next week, suggesting to me that the program has progressed farther than has been announced. Hence my question to you.

Please don't feel under any obligation, however, to do more than give me your own advice. I am running down every opportunity that shows any promise whatever, in the earnest effort to get out of the Government service where I have long since reached the end of my rope and will soon begin to stagnate.

I am writing this rather hurriedly as I have an opportunity to send it in town to be mailed.

Yours sincerely,

J. J. Butler

Another spur to my "getting out" is caused by repetition of the practice of adding to my duties and responsibilities to sustain some high paid higher ranking official in his position, while I get neither compensation nor credit: I am de facto secretary of two of the most important Conference committees -- and have actually heard flattering praise handed out to the de jure Secretaries for my work and initiative which they swallow, bait hook and sinker, and these are not isolated cases.

rather was thinking an eye in my direction.

November 23, 1921.

Mr. J. Jarvis Butler,
104 Bradley Road,
Cherrydale P.O., Va.

My dear Mr. Butler:

I received your personal note written by you last Sunday evening, and don't blame you one bit for having the desire to make a change and it is disgraceful the way you are treated, and apparently is a waste of time. It seems to me that you would far better be giving your ability where it would be appreciated both morally and financially.

I showed your letter to Mr. Edison, and he says he will always bear you in mind. He will shortly be going with friend Henry Ford to Mussel Shoals, and I am sure if an opportunity offers he will not forget you.

Sincerely yours,

P
1921

NCB

December 19, 1921.

Mr. J. J. Butler,
General Board,
Navy Department,
Washington, D. C.

My dear Mr. Butler:

Mr. Edison wishes me to ask you if you will kindly get him the Government publications by the Director of the Mint for the last eight or ten years. He does not know whether they are published yearly or not.

I have sent down to your home address a small package which bears the label "Not to be opened until Christmas." This contains something for each of the two children, and I hope each one will be pleased.

There is also a package of RE-CREATIONS that has gone down to your home address. This will give you some new music for Christmas.

With kindest regards to you all, I remain,

Sincerely yours,

DEPARTMENT OF THE NAVY.
GENERAL BOARD,
WASHINGTON.

4
December 21, 1921.

My dear Mr. Lendencroft:

Your letter of December 19th reached me yesterday and I immediately took steps to secure for you the publications of the Director of the Mint. These consist of his annual reports to the Secretary of the Treasury. I have just been notified that the copies for 1911, 1913, 1914, 1915, 1916, 1920 and 1921 are ready for me. I will get them tomorrow and post them at once. I will continue to search for the reports of 1912, 1915, 1918 and 1917 and if they are to be had you may be assured that they will be along.

The package of re-creations, when I got them home to play, surpassed even my expectations. They are all beautiful numbers and I think one is almost my favorite of the entire collection. The pleasure we derive from the instrument and records must continue to be the best indication of our thanks.

I note in your letter that a package has been sent for the children and I know they shall be happy to receive it on Christmas morning.

My birthday was a "red letter" day for J-1 as it was the first day he really walked. Quite suddenly he commenced, and navigates the entire house now ad lib. He is very comical and looks more like a mechanical doll than a little human being.

Harriet, having celebrated last Christmas with scarlet fever, has just developed chickenpox to keep her in this year. However, this is not a serious affair as you know, and will only deprive her of some of the exchange of visits with the neighborhood children. But even this has its advantages.

With very kindest regards.

Yours sincerely,

Wm. Brewster

Mr. Edison:

*You will be amused
by the last 2 pages.
McCawcroft*

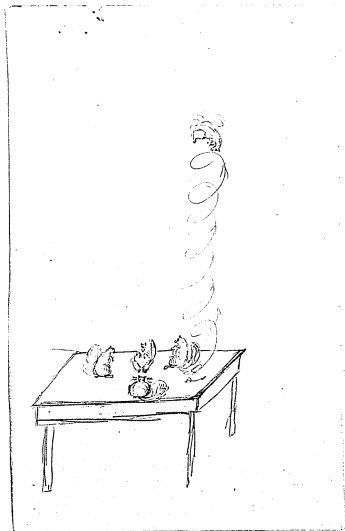
4785

P.S. I enclose a little pencil sketch which will amuse you and possibly Mr. Edison. At all of the Board meetings there is, of course, a pad at each member's place and wondrous are some of the results as everything from very rough to very handsome marginal illustrations are produced. The one enclosed seems closely related to our squirrel food file. It's author explained to me that it represents four members and Secretary, all of high rank, at one of the Conference sessions.

A characteristic of the chairman is his inability to keep on the track or to keep track of the proceedings under stress of excitement, and this shows him "up in the air," very graphically illustrating his relationship to the business in hand.

*He refers to a filing box in which
I keep the "nest" letters - I call
it the "Squirrel."*
Meadowcroft

[ATTACHMENT/ENCLOSURE]



December 24, 1921.

Mr. J. Jarvis Butler,
104 Bradley Road,
Cherrydale R.C., Va.

My dear Mr. Butler:

I enjoyed your letter of December 21st very much, and thank you for your usual kind and prompt attention to Mr. Edison's request for publications of the Director of the Mint. I shall look for their arrival in the early part of next week.

I am greatly pleased to learn that the suggestions were found so fully up to your expectations, and I am glad to learn that you are enjoying them so much.

Hurriet ought to be more considerate around Christmas time. She seems to pick up anything that is loose. You don't suppose that this is inherent perversity, do you? Well, after all chicken pox is not so very serious, so long as she is kept comfortably warm. May she get over it soon.

Mr. Edison was very much interested in your postscript and the pencil sketch. So was I.

With very kindest regards and all the best wishes I can send you for Christmas and New Years, I remain,

Sincerely yours,

**Naval Consulting Board and Related Wartime Research Papers
Correspondence (1922)**

This folder consists primarily of letters exchanged between William H. Meadowcroft, Edison's personal assistant, and J. Jarvis Butler of the Navy Dept. General Board, whom Edison used as a source for government-published data. Included are items pertaining to phonograph record production figures, Edison's plan for a reform in the U.S. currency system, and his idea for an emergency hydrogen-filled parachute for aviators, which he and Meadowcroft traveled to Washington to discuss with officers of the U.S. Air Service. There is also correspondence with Edgar G. Oberlin of the Naval Research Laboratory regarding Edison's refusal to lend political support to the laboratory, then under construction in Washington, D.C.

Approximately 40 percent of the documents have been selected. The unselected material consists primarily of personal correspondence between Butler and Meadowcroft, who appear to have been close family friends.

DEPARTMENT OF THE NAVY.
GENERAL BOARD,
WASHINGTON.

February 8, 1922.

My dear Mr. Hoadcroft:

Through the kindness of one of the young men of the office, Mr. Kiner, who has personally investigated the inclosed figures I find that they represent the factory list prices of production in the states noted during the year 1919 and not retail or distribution figures.

The man who compiled these figures told Mr. Kiner that the variation in the average price is due to the fact that in the states averaging a high price there are establishments which produce expensive electric machines such, for instance, as the nickle-in-the-slot type which may cost two or three thousand dollars each.

The man in charge of this department admitted the uselessness of this record. When asked why he kept records which were manifestly of no value, he replied that they were reports that had been sent in and were simply kept. In other words, they seem closely related to "Topsy".

I am sorry our investigation will not prove of use to Mr. Edison, but it shows at least there is nothing worth while to be found here. The census people were very courteous and agreeable and willing to offer any help within their power. This tabulation which I return was prepared by the chief statistician of the Manufactures Section. Of course when Mr. Kiner called he had another copy and not the table with Mr. Edison's notes on it which I am returning for such use as it may be to you. With kind regards.

Yours sincerely,

James Butler

Mr. H. Hoadcroft,
Edison Laboratory,
Orange, New Jersey.

[ATTACHMENT/ENCLOSURE]

Just get this from Census of Bureau
 then copy all ^{PHOTOGRAPHS} ~~boards~~ from Mr Butler
 of Navy or person - seems called up

State	Photographs for Disc records		All other products Value
	Number	Value	
Illinois	262547	\$ 949518 ^{26 each}	\$ 319264
Indiana	165565	5255099 ³⁶	2724396
Michigan	61086	3917732 ^{64 - every}	318760
Ohio	78760	2436176 ³¹	3784358
Wisconsin	42593	3205595 ^{75 - every}	856132
All other states	1527095	64374248 ⁴²	59041692
	<u>2,137,596</u>	<u>88,836,368</u> ^{42 1/2}	<u>69,115,020</u>

Statistics for "photographs for cylinder records", dictating machines", "records", "needles", and "accessories", cannot be shown separately without disclosing individual operations.

2,137,596 photos \$ 88,836,368
 of 41 average values

All others 69,711,502
 Presumably Records

Tell Butler Cant make this out -
 dont say what year-sets
 nothing about Records &
 I know that the Value & Number
 of machines is greatly increased

February 10, 1922.

My dear Mr. Butler:

Many thanks for your letter of the 8th and for your explanation of the mysteriousness and weirdness of the statistics on phonographs. I think Mr. Edison will enjoy a hearty laugh, and will arrive at the same conclusion that you have that the figures are closely related to "topsy".

Both he and I appreciate the fact that you have done your darndest, and as they say out west, "angels can do no more".

With kindest regards and all good wishes, I remain,

Sincerely yours,

Mr. J. Jarvis Butler,
General Board, Navy Department,
Washington, D.C.

April 24, 1922.

My dear Mr. Butler:

I received your letter Saturday but I shall not stop to answer it now.

Mr. Edison is in a hurry to have me ask you whether you will kindly obtain for him a copy of the Federal Reserve Banking Act and all the amendments to date. He thinks you can get this from the Comptroller of the Currency.

With kind regards, I remain,

Sincerely yours,

May 2, 1922

My dear Mr. Butler:

Mr. Edison would like you to go over to that section of the War Department which is devoted to aeroplanes, and find the head man who persisted, in spite of sarcasm of naval people, in trying to sink warships. Mr. Edison would like you to ask him if there is any value in the following idea of making the lives of aviators a little more safe:

Have a silk balloon all collapse, the throat being connected to a small steel bottle of hydrogen, under pressure of three or four thousand pounds, the bottle to contain just enough hydrogen to inflate the balloon about 98%. This would prevent any excess pressure from harming the balloon, and exact quantity of the hydrogen in the balloon being experimentally determined. The inflation of the balloon could be completed in three seconds or less. The balloon could possibly be shaped so that it would act as parachute at the same time.

Mr. Edison has not figured out if it is practicable as to the amount of hydrogen. A parachute to be effective must be operated high up, but on account of the rapidity of inflation, which, after all, is the main point, this scheme would possibly work nearer the ground when the aviator knows the game is up and he might lose his engine.

Sincerely yours,

Mr. J. Jarvis Butler,
Navy Department,
General Board,
Washington, D.C.

[ATTACHMENT/ENCLOSURE]

With better to go and see

In 1911 [War] devoted to
Aeroplanes - and the 11000
man who persisted in trying
to sink Warships against
disavowal of Naval People
as risk him if this I think
was a good for making
life of aviators a little
safer

Have a silk balloon all collapsed
the throat being connected to a
small steel bottle of Hydrogen
under 3000 to 4000 lbs pressure
with just enough to inflate the
balloon ~~to~~ about 98%

²
to prevent any excess
pressures to burst the balloon
The exact opportunity in the
balloon being experimentally
determined

The inflation of the balloon
could be completed in perhaps
3 seconds or less

The bag possibly could be
shaped so it would act
as a parachute at the
same time -

I haven't figured out if it
is practicable as to
amount of Hydrogen

~~_____~~

[ATTACHMENT/ENCLOSURE]

to be effective
must be operated high
up, but this scheme
on account of the rapidly
of inflation which is after
all the main part of
the scheme ~~is not~~
possibly would work near
the ground, when central
knows the game is up
or he needed (over the
machine) -

5

DEPARTMENT OF THE NAVY.
GENERAL BOARD.
WASHINGTON.

D. Naval Com. Bd.
1922

REP.

May 11, 1922.

Dear Mr. Moadowcroft:

Today I called up Captain Sonten to whom I had referred the question of Mr. Edison's proposed safety device for aviators outlined in your letter of May 2nd. I found that he has taken the matter up in an exhaustive manner even though, as a flyer, he saw reasons why it was not practical as outlined.

He is accordingly preparing an extensive memorandum on the subject, explaining the difficulties met in the air as well as the causes and character of accidents to be guarded against, which he thinks will be of interest to Mr. Edison. Facts are presented, too, in detail, in the hope that they can have the benefit of Mr. Edison's interest and advice.

I hope to get this memorandum in time for you to discuss it with Mr. Edison before you come down next Friday as it may be interesting to talk with Captain Sonten while here. In the hope that this might be productive of good results, I have asked Captain Sonten, tentatively, to lunch with us Saturday and he has in return asked the privilege of bringing a couple of his associates with him who are deeply interested in such matters as proposed in your letter of May 2nd, and who will be particularly glad to meet and talk with you on this subject.

I fear I haven't been able to portray properly the reception Mr. Edison's proposal met. But in my phone talk with Sonten, and really to my surprise—for you know the Army and Navy can learn nothing of worth while from civilians; he evinced a genuine gratefulness for the interest already shown and a strong desire to encourage further investigation. This is borne out by the fulsome character of the reply being prepared to my inquiry, its subtle appeal for help, and their particular desire to talk with you on the subject.

With kind regards,

Yours sincerely,

Jarvis Butler

Mr. William H. Moadowcroft,
Edison Laboratory,
Orange, N. J.

May 12, 1922.

My dear Mr. Butler:

I want to thank you for your kind letter of May 11th in regard to Capt. Seaton. I showed it to Mr. Edison at once. He was very much pleased to learn that his suggestion had received such careful consideration, even though it might not be regarded as practicable.

I shall be very glad to receive Capt. Seaton's memorandum in time to discuss it with Mr. Edison before I come down next Friday. Mr. Edison has given me a message for Capt. Seaton which I shall deliver to him in person if we should meet at lunch in accordance with your agreeable suggestion. In the meantime the forthcoming memorandum will perhaps present a little more matter for discussion.

Here is another matter. Mr. Edison is doing a lot of work with the idea in mind for helping the cotton farmer and he would like to have you find out from the War and Navy Departments what buildings, barracks, etc. they have in the East and Southern parts of the U.S. that could be used for storing the next crop of cotton. If the information is available he would like to have a description of the kind of the buildings, floor space and other particulars, such as condition, railway and water transportation, etc.

Once more throwing ourselves on your mercy and with kindest regards, I remain,

Sincerely yours,

DEPARTMENT OF THE NAVY.
GENERAL BOARD,
WASHINGTON.

May 13, 1922.

My dear Mr. Henderson:

Meadell
Tell Butler. Every go to Ill a chuyton,
the concept which will see the revision

Your letter of yesterday was received this morning. Captain Sonton came in to see me a few minutes ago and showed me the draft of his memorandum on the subject of safety devices for aviators and also sent into such more detail concerning possible lines of development which he will go over with you. One point possibly worth discussing with Mr. Edison is the desire for an instantaneously opening parachute combined with a means of lifting the pilot bodily from his seat a sufficient height to enable him to clear the tail of the plane. The great trouble with present day parachutes is their fouling the rudder gear.

He mentioned also the commercial possibilities of Mr. Edison's original suggestion which might be developed for the use of passengers while the pilot in more or less control of his ship would stay with it in an effort to make a forced landing.

Captain Sonton asked permission to bring to meet you General Mason L. Patrick, the Chief of the Army Air Service, with whom he has discussed the proposal in your letter of May second and the authorized Captain Sonton to give all necessary time in furnishing you all information to familiarize you with the conditions to be met and investigations along similar lines.

I am quite pleased that the Chief of the Air Service himself is so interested and that he has asked the opportunity to meet and talk with you. Captain Sonton also suggested bringing two other officers, one representing the Balloon Section ("lighter-than-air man") and one from the Engineering Division of the Air Service, but we thought perhaps this larger number might allow the discussion to develop along each man's specialty rather than the broad principles to which it could be confined with just the Chief, Captain Sonton and us. However, if you would like these the other men to join the party they can be included.

I wish that Mr. Edison himself could meet these men, and regard it as a particularly hopeful sign that the grand council of the Air Service himself at once evidenced such broadmindedness.

Regarding the third paragraph of your letter relative to barracks, buildings, etc. possibly available for storing cotton, I will not

2.

together all information possible for you. I should think there would be a vast amount of such storage space available, in view of the retrenchment in both services.

Captain Sexton promises me the memorandum Monday afternoon and I will get it in the mail at once with the hope that you will have a good opportunity to discuss it with Mr. Edison along with the ideas given above, which may not appear therein.

Looking forward with the greatest pleasure of seeing you next week, I am

Yours sincerely,

James Beuther

Mr. W. H. Mendenhall,
Edison Laboratories,
Orange,
New Jersey.

May 16, 1922

My dear Mr. Butler:

I have received your letter of May 13th, and showed it to Mr. Edison. To my great surprise he said he thought he would go down to Washington either this week or next about other matters, and while there would be glad to meet and talk with Captain Seaton, General Patrick and any other officers they might wish to bring with them.

Captain Seaton's memorandum has not come in at this writing, but I presume it will reach here tomorrow morning and I will see that Mr. Edison sees it at once. I would not be surprised if Mr. Edison and I came down by the Congressional Limited on Thursday of this week. If we do I will telegraph you. I think he would stay only one day, Friday. So I would go to the Powhatan with him to stay Thursday night.

If Captain Seaton and General Patrick and any others desire to lunch with you and I on Saturday I am quite agreeable, but please do not let them get an impression that I am an expert or even a technical man, or I shall sink in deep water at once.

In view of the changed complexion of things would it not be well to hold Saturday's luncheon in abeyance? I shall telegraph you "whichever way the cat jumps."

Sincerely yours,

June 2, 1922

Mr. J. Jarvis Butler,
General Board,
Navy Department,
Washington, D.C.

Dear Mr. Butler:

Mr. Meadowcroft was thinking this morning that you might be under the impression that he had forgotten you, but the fact of the matter is that ever since he and Mr. Edison returned from your camping grounds in Washington it has been one thing after another, and never reaching the bottom of things.

The thought of you flashed through his mind this morning at 9:25 just as he and Mr. Edison were departing for a day in New York, with bankers, etc. and he hurriedly (last word like) asked me to drop you a line - fishing line - and say that he will write you fully either tomorrow or Monday.

If you would only use your influence and get President Harding and Secretary Mellon, and a few others in Washington, to adopt Mr. Edison's plan in full, say, next week, we would be able to do a number of miscellaneous things that pile up when an office is in a rush state.

With kind regards,

Yours very truly,

June 5, 1922

My dear Mr. Butler:

If you did not already know how strenuous things are sometimes in the neighborhood of the great storm center, you would think me fearfully negligent. Our "whirl" has continued from the time we arrived home until the present, and while I was straggling into my overcoat to rush away with Mr. Edison on Friday last I asked my secretary, Mr. Ryan, to drop you a little note to show that we had not entirely collapsed.

Of course I am not going to attempt any detailed report of our activities, but will just simply say that we have been busy, and you can imagine a Capital B as large as large as the Capital at Washington, and then some. However, I am sure you will be glad to learn that things are shaping up very promising in regard to Mr. Edison's Plan, and there seems to be something quite promising ~~at~~ far ahead.

Mr. Edison is highly appreciative of all you did for us in Washington, and he has told me not to forget about that tire. This reminds me that you have never sent me the size of your tire, and whether it is clincher or straight sides. Please let have this information and I will attend to the rest.

We certainly had a splendid time with you and also with your family, and we both enjoyed ourselves very much, and made some progress, thanks to your lively interest.

With kindest regards to you and also to Mrs. Butler and the children, I remain,

Sincerely yours,

Mr. J. Jarvis Butler,
General Board,
Navy Department, Washington, D.C.

DEPARTMENT OF THE NAVY.
GENERAL BOARD,
WASHINGTON.

P.F.

Put last note on
my desk
June 7, 1922
E

Dear Mr. Mondowroft:

Your letters of Monday and Tuesday came yesterday and today "respectfully". Had I not received Mr. Ryan's note a few days before, I should certainly have communicated with the police to find out where you were at. Absque hoc, I understood perfectly that you were extremely busy and that when opportunity offered you would drop me a line, and you have lived up nobly to my confidence.

I am delighted to hear that the "Edison plan" is shaping up in a promising manner. It is certainly a stupendous thing, both in itself and in the benefit it will be to the people. It seems a shame that, like all unselfish offerings, it must be literally forced upon the beneficiaries.

I am very happy that Mr. Edison does not think unkindly of my efforts to contribute to his comfort and convenience while here. The close association with him those few days was undoubtedly the red-letter event of my life.

The Chemical Warfare Service of the Army is the principal governmental agency experimenting on war gases. While the Navy (Bureau of Ordnance), and possibly other sections, do more or less work on a small scale, the Chemical Warfare Service is the only specialty organization and they naturally go in for it on an extensive scale. Brigadier General A.A. Fries is Chief of the Chemical Warfare Service and is himself very active in all branches of his service, which include:

Industrial Relations Section,

Charged with the collection and dissemination of military information for use of Chemical Warfare Service; maintenance of relations with chemical industries, educational institutions, Government bureaus, Military Intelligence Department, and maintenance of records on location of technical personnel and manufacturing facilities.

Supply Section,

Purchase and lease of real estate, the purchase of supplies and equipment, arrangement for shipment of supplies, the disbursement of funds, the

settlement of claims, the disposition of surplus supplies.

Technical Section,

Supervision of experimental and development work of the Chemical Warfare Service, and the completion of all technical data pertaining to service - war requirements - technical reports.

Training Section,

The training of Chemical Warfare troops and the supervision of publications pertaining thereto; supervision of vocational training and recreation within the Chemical Warfare Service.

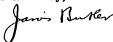
Of course, there are individual officers in charge of each of these sections. If you will address General Fries personally, you will undoubtedly get any information requested. If you desire, however, I will be glad to present any letter to the right people in the right way to insure perhaps a little more speedy action than might be had otherwise.

I am delighted to hear that you are going to send down some more records, and you know how much they will be appreciated. Last night we had some friends in and I finally had to stop playing so that they would go home, but as that is always the case I have learned to do it very gracefully.

Several days ago I wrote a memorandum to include in my next letter to you but as this has stretched out so long, I will enclose it just as I had it prepared for my own reminder. It is another evidence of the Army's appreciation of Mr. Edison, further evidence of which I am confident will follow any request he may make of General Fries.

With kindest regards,

Yours sincerely,



Mr. William H. Meadowcroft,
Edison Laboratory,
Orange, N. J.

DEPARTMENT OF THE NAVY.
GENERAL BOARD,
WASHINGTON.

June 7, 1922. 2

Dear Mr. Meadovercraft:-

Having received two letters from you, I feel you are entitled to two in return. Hence this "Sequel, or Things which ain't finished in the first". (I believe this was the title of the small boy's book.)

Answering your question as to my tire size. It is 33 x 4 straight sides.

I enclose the pictures taken when you were here and hope they will recall pleasant experiences. You will remember the very unfavorable conditions under which I took the one in the woods with Mr. Edison in the group. Having little hope for its outcome I had a friend of mine who is something more than an expert amateur do the developing, with instructions to do all possible for that one exposure, at the expense of the others if necessary. He did remarkably well, as this print shows. He told me, further, that the negative could be intensified and very much improved. He hasn't the necessary apparatus - or whatever is needed - just at present, so I will have that done later, and of course send you copies.

The others need no explanations I am sure, except J-4 hasn't "busted" yet -- he looks so much like he was ready to pop. He certainly is posing in one. Maybe you will remember his burst into laughter as soon as the camera clicked.

The picture of the 1500 ft. rambler turned out remarkably well. You will remember I didn't even slow down for it - poking the camera out through the windshield as we passed.

I expect to go down to Richmond Friday morning - returning Sunday afternoon - for the Sigma Nu Phi annual convention. A number of us are going to drive down more or less together.

Did you notice the accounts of the recent Balloon race and recognize the picture of the winner, Major Kostov? He was the "lighter-than-air" man who called on you and Mr. Edison in my office along with General Patrick and Captain Seaton.

Hope you were uninterrupted long enough to make a dent in the top of your desk, the other day. I know what it is, and how hopeless it appears at times. But oh! that "grand and glorious feeling" when daylight begins to trickle in again.

With kindest regards,

John S. Russell
Jennie Butler

DEPARTMENT OF THE NAVY.
GENERAL BOARD.
WASHINGTON.

PEP.

June 13, 1922.

Dear Mr. Hoadcroft:

Upon my return yesterday I found Mr. Edison's telegram of the 9th and a copy of Mr. Smith's reply thereto in my absence, which I trust was satisfactory.

In reply to your letter of the 10th I sent you yesterday index maps of both Georgia and Tennessee.

This morning I received your letter of the 12th enclosing Mr. Edison's ideas in response to the suggestions made by Captain Coulter. I telephoned Coulter that I had received them and at Mr. Edison's request would hand them on to him, and asked him to come in the office which he will do this afternoon. He said he felt highly flattered to have his suggestions receive the notice and attention of Mr. Edison and greatly pleased that they have been considered so promptly. Your other letter of yesterday may be answered as follows: The Department of Agriculture does not publish anything showing the statistics of packing houses but the Agricultural Section of the Census Bureau has compiled the statistics which are now in the hands of the printer as a part of the complete report of the 1920 census which is expected to be issued very shortly. This report will also include prices and indeed is a compilation of everything that they have collected. I have made arrangements to have a copy furnished me for you the moment that it is available. There is no publication that I have been able to locate showing the prices of farm products.

Yesterday afternoon the box of records arrived and we got our first enjoyment out of them when they were opened in the office and Miss Fay kindly made a list of them. In the evening at home we had a regular recital with the neighbors on both sides on hand. It is certainly a spression that would convey the unanimous vote of the family's thorough appreciation of them. Won't you please tell Mr. Edison how deeply grateful we are and what an unlimited source of pleasure and education he has given us?

We had a delightful trip to Richmond. Alice went with me and the children were left with my sister, the first time Alice

2.

was over away from J-4. Needless to say he behaved himself as your godson should and appears perfectly willing that we should leave him the whole of next month.

Please remember us kindly to Mr. and Mrs. Billy and with our very best regards to you and Mr. Edison,

Yours sincerely,

Jami Butler

7717

D
PRR NCB

IN REPLY ADDRESS
THE SECRETARY OF THE NAVY
AND REFER TO NO.

N

NAVY DEPARTMENT

WASHINGTON

Day that while I helped to get this appropriation I fought the Naval Comd Board & consequently close to present

Dear Mr. Edison

As you undoubtedly know, Congress failed to provide an appropriation for operation of the Naval Research Laboratory during this fiscal year. The House had appropriated \$100,000 but this was struck out by the Senate.

Ch

We all realize and most highly appreciate the fact that you are responsible for securing from Congress the appropriation of \$1,500,000 under which the Laboratory has finally been constructed. It is felt that with the present policy of economy, it may be difficult to get Congress to give us money with which to operate next year, although true economy and preparedness would seem to lie in increased research work. Further if we do not succeed in getting the plant in operation this year, it will be increasingly difficult to obtain money for the same at any future time, while if once we can operate and show results, then, as the plant grows, its usefulness will become more evident each succeeding year.

Although in your statements before Congress you set forth cogent reasons why the Navy should have a Research Laboratory, now that there is no imminent probability of war, a word from you regarding the present and future need for such a naval adjunct would have great influence with Congress. May we therefore ask you to write us a letter which we can present in the Congressional hearings and in which you outline your reasons and recommendations for the operation of a Laboratory by the Navy?

You may be interested in the enclosed photograph which shows the present state of the plant. Within the next few months all the contract work will have been completed, the grounds cleared up and the plant ready for operation.

I realize the great liberty I am taking in making this request, but feel that your probable interest in the success of a project originated by you may be a sufficient excuse.

I am, Sir, most respectfully,

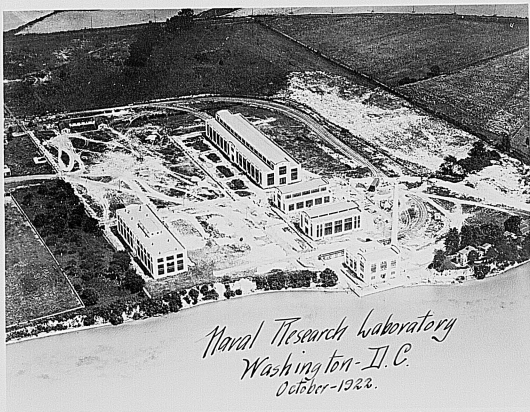
E. G. Oberlin

E. G. Oberlin,
Commander, U.S. Navy,
Assistant Director

It became known that I had been in Washington and that I had been in the Naval office - but my presence was disregarded. I shall not speak as I should it will be a week

see for me

[ATTACHMENT/ENCLOSURE]



*Naval Research Laboratory
Washington - D. C.
October - 1922.*

November 1, 1925

E. G. Oberlin, Esq.,
Commander, U. S. Navy,
Assistant Director,
Navy Department,
Washington, D.C.

Dear Sir:

I have received your letter of October 27th concerning the Naval Research Laboratory.

While I helped to secure the appropriation in Congress I fought the Naval Consulting Board and everybody else to prevent the Naval Research Laboratory from being installed in Washington and from being operated by Naval Officers, but my protest was disregarded.

I am not inclined to render any further aid as I think the present laboratory will be a sink-hole for money.

Yours very truly,

TAB:PTR

**Naval Consulting Board and Related Wartime Research Papers
Correspondence (1930)**

This folder consists primarily of correspondence relating to a proposed visit to the West Orange Laboratory by the members of the Naval Consulting Board (NCB) in conjunction with their annual dinner commemorating the end of the war. Although Edison expressed a willingness to meet them, he was not well enough to see the visitors when they arrived on November 12. The correspondents include Edison's personal assistant William H. Meadowcroft, NCB secretary Thomas Robins, and NCB member Spencer Miller.

Four of the seven documents have been selected. Some of the unselected items relate to the death of NCB member Andrew L. Riker.

11

NAVAL CONSULTING BOARD

OF THE UNITED STATES

THOMAS A. EDISON, MEMBER.
WILLIAM L. SAUNDERS, CHAIRMAN.
BENJAMIN B. TRAYER, VICE CHAIRMAN.
THOMAS ROBINS, SECRETARY.

Medell

Say ok
was October 14, 1930.

To the Members of the Naval
Consulting Board:

Our annual dinner will be held on Wednesday, November 18th, at the Century Club, 7 West 42d St., New York City, at 7 P.M.

If a sufficient number of members would like to call on Mr. Edison at Orange, I will make the necessary arrangements. Our old President says that he will be delighted to see us.

Will you kindly let me know as soon as possible if you will attend the dinner and if you would like to make the trip to Orange.

Yours very truly,

Thomas Robins

Secretary

TR:Y

LIBRARY OF
THOMAS A. EDISON

OCT 16 1930

RECEIVED

Mr. Thomas Robins

13 Park Row,

New York City

2423

NAVAL CONSULTING BOARD

October
eighteenth
1930

Mr. Thomas Robins,
13 Park Row,
New York City.

Dear Mr. Robins:

The copy of your notice of the Annual Dinner of the Naval Consulting Board was brought to Mr. Edison's attention.

He asked me to write and say that he expects to be here on November 12, and will be very happy indeed to see the members of the Board if they desire to take the trouble to come over to the Laboratory in the afternoon of that date.

With kindest regards, I remain

Sincerely yours,

Ediphoned
WHM:C

Assistant to Mr. Edison.

NAVAL CONSULTING BOARD
OF THE UNITED STATES

THOMAS A. EDISON, PRESIDENT.
WILLIAM L. SAUNDERS, CHIEFMAN.
BENJAMIN B. THAYER, VICE CHIEFMAN.
THOMAS ROBINS, SECRETARY.

OFFICE OF THE SECRETARY
13 PARK ROW, NEW YORK

November 10, 1930.

Mr. William H. Meadowcroft,
c/o Thomas A. Edison, Esq.,
Orange, N. J.

Dear Mr. Meadowcroft:

According to our program, eight or nine of us are leaving New York by bus at 5 P.M. on Wednesday. We should get to the laboratory before four o'clock. According to acceptances, those who are making the trip are Addicks, Baekeland, Hutchison, Miller, Scott, Whitney, Arnold, Robins. It is quite likely that Sellers and Emmet will also go.

Yours sincerely,

TR:Y

Thomas Robins, Secretary

Pat. *Stamford Comm - 4 - 1377*

*Mr. Edison to be used
with 4 others not
over done
to be
11/24/30*


NAVAL CONSULTING
Telegram received at Glenmont BOARD

November 13, 1930.

Mr. Thomas A. Edison:

Naval Consulting Board assembled at its annual meeting sends to its honored president Thomas A. Edison their most hearty and cordial expression of affection and best wishes for his complete recovery from his present indisposition, and furthermore, we desire to send cordial felicitations to Mrs. Edison and this expression of their appreciation of her love and attention to Mr. Edison.

Naval Consulting Board
Spencer Miller.



**SPECIAL COLLECTIONS SERIES
CHEMICAL PRODUCTION RECORDS**

Special Collections Series
Chemical Production Records

This series consists of two subseries corresponding to the two classes of chemicals manufactured at Edison's plants in Silver Lake, New Jersey: (1) Organic Chemical Plants Records; and (2) Edison Chemical Works Records.

The Edison Chemical Works was established around 1905 to manufacture the iron and nickel compounds used by the Edison Storage Battery Co. (ESBCo). Around 1916 it became a division of ESBCo, with Edison's brother-in-law John V. Miller continuing as manager and Charles F. (Frank) Hunter serving as superintendent. Shortly after the outbreak of World War I, Edison began constructing additional plants at Silver Lake to manufacture carbolic acid (synthetic phenol), necessary for the production of his phonograph records, as well as other organic chemicals in short supply. Phenol Plant No. 1, owned by Thomas A. Edison, Inc., began operations within six weeks after the commencement of the war. It was managed by H. H. Meno Kammerhoff, head of the Edison Carbolic Division (also known as the Carbolic Acid Division). Phenol Plant No. 2, owned by Thomas A. Edison, Personal, was in production by June 1915.

Three additional chemical plants, owned by Edison personally, were subsequently built at Silver Lake. The Aniline Plant, which opened around the same time as Phenol Plant No. 2, manufactured aniline oil, aniline salt (in small quantities), and paraphenylenediamine. The Amidophenol Plant, on which construction began in June 1916, produced amidophenol (also known as paramidophenol hydrochloride or p-aminophenol). The Benzidine Plant probably opened in November 1916, although it apparently never produced benzidine.

Edison's personal phenol and aniline plants were initially managed by Edgar S. Opdyke, a longtime associate who had previously worked for the Edison Portland Cement Co. After Opdyke returned to EPCCo at the beginning of 1916, he was replaced by Wilfred S. Dowling. In September 1916, James T. Phelan became manager of the Phenol and Aniline plants, along with the new Amidophenol Plant.

In addition to the plants at Silver Lake, Edison constructed two plants to manufacture pure benzol (a by-product of coke used in the manufacture of synthetic phenol), as well as toluol, solvent naphtha, and naphthaline. One

was built at the works of the Cambria Steel Co. in Johnstown, Pennsylvania; it began operations in February 1915. The other, a cooperative venture with the Japanese firm of Mitsui & Co., was built at the works of the Woodward Iron Co. in Woodward, Alabama; it began operations in May 1915. Both plants were constructed under the supervision of William H. Mason. The Johnstown plant was managed by John Bacon, Jr.; the Woodward plant, by Claude H. Opdyke.

After the United States entered World War I, Edison's attention shifted to naval research, and he transferred his personal stake in the chemical business to TAE Inc. A Coal Tar Products Division, managed by Kammerhoff, was created, with separate departments for each plant: Carboic Acid Dept. (Phenol Plant No. 1), Phenol Dept. (Phenol Plant No. 2), Amidophenol Dept., and Paraphenylenediamine Dept. (Aniline Plant). At the same time, the New Jersey Products Co. was established to manage sales. Unwilling to compete on a long-term basis with the established chemical companies, Edison had always intended to supply strategic chemicals only during the war emergency. With the coming of peace, the benzol absorption plants in Alabama and Pennsylvania were sold, and the Silver Lake plants erected during the war were closed or scaled back.

The chemical nomenclature used in the editorial descriptions reflects historical usage. For example, "benzol" is used for the modern term benzene, "toluol" for toluene, "xylo!" for xylene, and "naphthaline" for naphthalene. The Edison industries appear to have used the terms "phenol" and "carbolic acid" interchangeably, although distinctions were always made between crude grades of chemicals, on the one hand, and pure (or "commercial") grades, on the other.

It should be noted that the arrangement of the documents in the microfilm edition deviates somewhat from the record group at the Edison National Historic Site archives, which is organized according to provenance into a "Plant Records" subgroup and a "Exide Corporation Gift" subgroup. A finding aid is available.

Approximately 5 percent of the documents, covering the years 1913-1927, have been selected. Related items can be found in the "Chemicals" and "Edison Chemical Works" folders in the Edison General File Series and among the chemical contracts in the Harry F. Miller File (Legal Series). The documents appear in the following order:

Organic Chemical Plants [from Plant Records Subgroup]

General Operations (1915-1917)
Amidophenol Division (1916)
Aniline Division (1916)
Carbolic Acid Division (1916)
Coal Tar Products Division (1917)
Phenol Division (1915-1916)
Johnstown Benzol Plant (1915-1918)
Woodward Benzol Plant (1915-1918, 1920)

Edison Chemical Works [from Exide Corporation Gift Subgroup]

J. V. Miller Papers (1913-1920)
C. F. Hunter Papers (1914-1926)
W. J. O'Dair Papers (1919-1920)
Other Experimenters (1914-1927)
Wax Division Papers (1924-1925)

Special Collections Series -- Chemical Production Records
Organic Chemical Plant Records

These documents relate to the production of organic chemicals from coal by-products during World War I. The manufacture of Edison's phonograph records depended on phenolic resin, an early kind of plastic. When imports of phenol (also called carboic acid) ceased with the outbreak of war in August 1914, Edison quickly built a plant at his chemical works in Silver Lake, New Jersey, to make synthetic phenol through the benzol sulfonation-alkaline fusion process.

To meet his need for large quantities of benzol, Edison also built two gas absorption plants in association with the coking operations of the Cambria Steel Co. and the Woodward Iron Co. at coal mines in Johnstown, Pennsylvania, and Woodward, Alabama. The reduction of coal in coke ovens released valuable by-products such as benzol and toluol, which Edison distilled and sold. The toluol went to various foreign governments and munitions companies for use in trinitrotoluene (TNT), while some of the surplus phenol made at Silver Lake was sold to the U.S. military for use in picric acid, another explosive. Edison constructed additional plants at Silver Lake to convert benzol into other useful chemicals such as aniline and paraphenylenediamine for his own requirements and for limited sale to industries hard-hit by wartime shortages.

The records are arranged according to individual plant or division. However, these documents do not constitute the complete business records of those plants and divisions. In most cases, only documents from a narrow date range have survived. The selected documents relate directly to Edison's personal involvement or to his personal projects. Along with correspondence and a few financial and accounting documents, the selected items include representative examples of Edison marginalia appearing on the routine daily production reports compiled by each plant.

The records appear in the following order: (1) General Operations; (2) Amidophenol Division; (3) Aniline Division; (4) Carboic Acid Division; (5) Coal Tar Products Division; (6) Phenol Division; (7) Johnstown Benzol Plant; (8) Woodward Benzol Plant.

Not Selected [from Plant Records Subgroup]

Para Plant of Edison International Corp. This folder contains a memorandum from 1918.

**Special Collections Series -- Chemical Production Records
Organic Chemical Plant Records
General Operations (1915-1917)**

These administrative, financial, legal, and technical documents pertain to various aspects of the chemical production facilities built by Edison after the outbreak of World War I. Many of the administrative items involve his personal business secretary, Richard W. Kellow. Among the legal agreements are 1915 contracts with Cambria Steel Co., Woodward Iron Co., Mitsui & Co., and Dominion Iron & Steel Co. regarding the establishment of benzol absorption plants in Johnstown, Pennsylvania, Woodward, Alabama, and Sydney, Nova Scotia. Also included is a 1917 contract to sell phenol to the government of France. Some of the technical documents involve senior Edison chemical engineer William H. Mason, while others are both unsigned and undated. They relate to the consumption of raw materials at Edison's phenol and aniline plants at Silver Lake, New Jersey, and to the design and operation of his benzol plants at Johnstown, Woodward, and Sydney.

Less than 10 percent of the documents have been selected. The unselected items include several volumes of Chemical Still Production Logs, one of which contains instructions and test data on benzol distillation. Also unselected are many routine financial and administrative records; duplicate copies of legal agreements; interoffice correspondence and statements concerning shipping and billing of chemicals; inquiries from Italian textile companies wishing to purchase aniline dyes, along with routine negative replies; technical drawings not by Edison; newspaper clippings; and documents unrelated to chemical production.

57
Jan. 18, 1915.

Mr. Edwin E. Slick,
Vice President and General Manager,
Cambria Steel Company,
Johnstown, Pa.

Dear Sir:

I hereby agree to erect at my own expense a Benzol Absorbing and Refining Plant at a place designated by you, and conveniently located near one of your banks of by-product Coke ovens at Johnstown. This plant shall be capable of absorbing all of the liquid hydrocarbons from the Coke oven gas from Plant No. 1, such hydrocarbons being estimated at eighteen hundred (1800) gallons, more or less, per day. The plant to be in operation within sixty (60) days from date, unless I am prevented by unavoidable causes from completing within that time.

The Cambria Company to rent to me at a nominal rental the ground upon which the plant is to be erected. This plant is to be owned and operated by me, subject to such rules and regulations as you may lay down to prevent any disturbance of your present gas system, and to provide against danger of fire.

You will agree to sell to me all the steam I may require to operate my plant, the price for such steam to be the usual price, provided you have sufficient excess steam capacity to furnish.

I agree to pay to you eighteen (18) cents per gallon for all the pure benzol and toluol absorbed, refined and shipped from my said plant. I will also pay you ten (10) cents per gallon for xyloil and solvent naphthas so absorbed, refined and shipped. In case I am unable to sell the xyloil and solvent naphthas at a profit, however, I am to have the right to return the same to the gases without payment therefor to you.

This contract is to cover a period of three (3) years from this date.

At the end of the three (3) year period, you are to have the right, if you so desire, to purchase my plant at two-thirds (2/3) the amount of its original cost. In case you do not desire to purchase the plant, I shall have the right to remove it. In any event, after the expiration of the three (3) year period, if you are continuing the production of benzol and toluol, I am to have the option of purchasing from you for a further period of three (3) years quantities of benzol and toluol equal to the capacity of my original plant, at the true market price for the same year by year.

As you have another bank of by-product ovens in connection with which you may desire to erect an absorbing and refining plant, I agree that

you shall be entitled to use all my plans, to copy my plant, and to receive all necessary expert advice from me or my people to enable you to erect and operate your own plant successfully, without any charge or claim whatsoever by me.

Yours very truly,

(signed) Thos. A. Edison

Thomas A. Edison,

Orange, N. J.

We accept the above proposition.

CANBRIA STEEL COMPANY

E. E. Slick,

Vice President & General Manager.

Benzol

7/7/50

40,000 gals absorbing oil used
per day (assumed)

assume 90,000 gals per day (fig)

24) 72,000

3,000 gals per hour oil

70° to 220° - cooled to 70°
150° temp taken out of oil.

3000	#
21,000	# per hr oil
1500	
20,500	00
21	
3,150	00

BTU per hour 42,000

0.4 ← ratio to water

BTU supply + absorption per hour

90) 126,000

9) 14,000

3

42,000 ^{water} / 60 = 90

24
8
24
3

42,000 gal. water per day to cool 80,000 gal. wash oil
(24 hr day)

30 gal per min -

2" pipe (etc)

Common Iron Steel Co. 7-3/15-

6 distributors wanted for use in
Absorbing columns (equiv B-6023)

→ gas piping for Absorbing towers (B-6025)

→ 1 Acid Pump -
American Hard Rubber Co.
#11- Mercer St, New York City
(Mr. Krimm) - 2 1/2" x 4" shaft
acting steams,

→ 1 acid tank 3' x 5' - (C-6004)

→ 1 alkali tank 3' x 5' - (C-6004)

Estimate - Benzol absorbing & purifying
plant for 12,000 cu ft. per day

Exhauster with Engine	\$ 2125.
Gas piping & valves	880.
3-10' x 30' absorbing towers	2100.
Booms & distrs for towers	450.
Bldg for Exhauster	300.
15- Storage tanks (2nd hand)	2200.
8- Pumps	715.
2- Hirsch coils	1400.
8- Small Tanks	450.
15- Heaters, Coolers, Siph. & Cond	3480.
2- Decanters	50.
Thermom., red. valves, traps, gauges	220.
1- acid Washer	875.
1- " pump & pipes	300.
2- Steam Still	5300.
Still Bldg	4500.
Pipe - valves - fittings	2000.
Freight, tools, erection engineering -	27345-
Total	6655-
	<u>34000.</u>

get ~~Order~~ Bid for Dominion Iron
and Steel Co., Sydney, N.S.

25-30- 6000 to 8000 gal 2nd hand
R.R. tanks (same as for Cambria Plant).

5- 2500 to 4500 gal 2nd hand
tanks -

(Universal Iron & Supply Co. - St. Louis, Mo.)

Commonwealth Iron & Steel Co.
Bengal Plant - Sydney - N.S.

- 2 - No. 10 1/2 - Horizontal Roots ~~Engines~~
Exhauster with Troy engine 12 1/2 x 16 -
vertical - separate bed plates - no governor
and foundations.
- 2 - Exhauster Houses - 24' x 36' - 14' ex. height
and foundations
- 6 - Absorbing Columns Complete 12' dia
40' high - on I beam foundations
Distribution
- 14 - 4' x 4' x 7' - Standard Cameron Pumps
(Zausch) code - 50 to 65 gal per min -
2 1/2" suction - 2" discharges
- 1 - Acid Pump - 2 1/2" x 4" - direct acting
Steam Pump - Hard rubber acid end.

B. 6023

Tankers -

		litres for complete plant
Raw oil - 2 - 6000		2 - 6000 gal
operat - 4 - 2500		2 - 6000
shut 0 - 2 - 6000		2 - 6000
shut 0 - 2 - 6000		2 - 6000
Dist - 3 - 2500		3 - 2500
Worled - 5 - 4500		1 - 4500
Storage - 14 - 6000		14 - 6000

Total

7 - 2500 gal
5 - 4500 "
20 - 6000 gal or 8000 gal

Ordered

12-4500
20-6000
2-7200

at present.

Domestic Iron & Steel Bengol PL -

B-6020	✓ 1	Bengol Building 44' x 60' x 44' high	
B-6025	✓	Tank foundations - "A" - "B" - "C" -	
B-6024	✓	1 Acid washer - 1000 gal -	Extra 1
C-6004	✓ 1	acid tank 3' dia - 5' deep -	1
C-6004	✓ 1	alkali tank 3' d x 5' deep	1
	✓	1 alkali ground tank - 6' dia - 4' deep	-
B-6022	✓ 2	Hirzel Stills - 4' - 6" dia 4. Sight etc	4
B-	✓ 2	Badger Stills 7' 6" x 10'	2

Domine Iron & Steel - Benzol Plant

	extra
3 - Storage tanks 3' x 9' long	4
3 - Heaters " 33" dia x 9' long	4
3 - Siphlegm " " "	4
3 - Condens " " "	4
6 - Cologer " " "	10
C-6001 - 2 - Separator 18" x 4'-0"	4
B-6025 C 36" gas piping with valves	
Water piping, & fittings, valves	
Steam Piping, valves & fittings	
Acid piping, valves & fittings	

From the Laboratory

of

THOMAS A. EDISON

ORANGE, N. J. March 5th, 1915.

Thomas A. Edison agrees to build a Benzol Absorbing Plant at the Coke Ovens of the Woodward Iron Company at Woodward, Alabama, providing an agreement can be obtained from that Company.

This plant to be a duplicate of his plant now in operation at the Cambria Steel Company, but with a somewhat larger absorbing capacity.

Edison believes he can build this plant in sixty (60) days from the signing of the contract with the Woodward Iron Company.

This plant shall be able to make pure Benzol and Toluol equal to the Barrett Specifications. The capacity of the plant shall not be less than for the absorption of 2,000 gallons of Crude Benzol daily, providing the Woodward Iron Company can furnish the gas.

Mitsui & Company Limited are desirous of furnishing the fixed capital and the running capital for the erection and operation of such plant, and to become the sole agents for the sale of the product therefrom during the operation of the contract with the Woodward Iron Company.

It is therefore agreed, that if the contract can be made with the Woodward Iron Company, Mitsui & Company Limited will place in the hands of a Bank or Trust Company \$58,000, and when the plant is ready to operate, a further sum of \$15,000, which money can be drawn upon by Edison by check to pay for the construction and operation of such plant, all such checks being countersigned by Mitsui & Company Limited, for which they are to receive receipted bills.

Mitsui & Company Limited further guarantee that should they not be able to sell all the Benzol and Toluol they will nevertheless pay for the Benzol and Toluol for which Edison is bound to pay the Woodward Iron Company.

Mitsui & Company Limited agree to keep accurate books as to sales which will show profits from sales, of Benzol and also of Toluol alone or converted to trinitrotoluol, and Edison will keep accurate books as to the plant and cost of operation.

As to repayment of the cost of the plant from the profits, it is agreed that 40% of the original cost of the plant to Mitsui & Company Limited shall be paid out of the profits from the first year's operation; 35% from the second year's operation and 25% from the third year's operation.

As to the free net profits, Mitsui & Company Limited and Edison are to share equally. After Mitsui & Company Limited have received the whole of the money advanced by them for building the plant, then the plant is to be owned by Edison.

Mitsui & Company Limited shall have the right to have a chemist of their own.

stationed at the plant, the salary of such chemist to be paid by them and not charged against the cost of operation or profits.

Edison agrees that if Mitsui & Company Limited hereafter desire to establish a similar plant in Japan he will furnish them with plans and details in consideration of receiving from Mitsui & Company Limited a continuing royalty of one cent a gallon on all pure Benzol and Tolual produced at such Japanese Plant.

Thos. A. Edison

Shunso Takaki
for Mitsui & Co., Ltd.

Witness to both signatures:

Wm. H. Linderoft.

Witness

THIS AGREEMENT, made by and between Thomas A. Edison, of Orange, N. J., hereinafter called party of the first part, and Woodward Iron Company, a body corporate under the laws of Delaware, hereinafter called party of second part,

W I T N E S S E T H:

1- Party of first part agrees, at his expense, to erect a benzol absorbing and refining plant, at a place designated by party of second part, conveniently located near by-product coke ovens at Woodward, Alabama, said plant to be capable of treating about 12,000,000 or 14,000,000 feet of gas daily, plant to be erected and put in operation within sixty days from date hereof, unless party of first part is prevented by unavoidable causes from completing within that time.

2- Party of second part agrees to rent to party of first part, at a nominal rent, the ground upon which said plant is to be erected. This plant is to be owned and operated by party of first part, subject to such reasonable rules and regulations as party of second part may lay down to prevent any disturbing of its present gas system, and to provide against danger of fire.

3- Party of second part agrees to sell to party of first part all steam he may require to operate his plant, the price for such steam to be a reasonable or usual price in Birmingham district, provided party of second part has sufficient excess steam capacity to furnish steam required. Party of second part is to furnish party of first part with water required, being approximately 250,000 gallons per day, and to connect its gas main to party of first part's plant, at its expense.

4- Party of first part agrees to pay fourteen cents per gallon for all benzol and toluol absorbed and refined by party of first part at this plant, and also agrees to pay to party of second part ten cents per gallon for xylol and solvent naphthas so absorbed and refined at plant, but in case party of first part is unable to sell xylol and solvent naphthas at a profit, he is to have the right to return the same to the gases without payment therefor, to party of second part, all payments to be made on or before the 20th day of each month for benzol and toluol, xylol and solvent naphthas absorbed and refined during the preceding month, party of first part to submit a written statement to party of second part of amounts so absorbed and refined during preceding month, with the right in party of second part to check and make examination of party of first part's books.

5- This contract shall cover a period of three years from the date hereof with the option in party of first part to terminate the contract at the end of the first year, or at any time thereafter, and remove the removable parts of the apparatus, with the right, however, or option in party of second part, at end of three year period, or on exercise of said option by party of first part, after party of first part abandons plant, to purchase plant at two-thirds of the amount of its original cost. In event party of second part does not exercise option to purchase, party of first part shall have right to remove plant.

6- If party of second part takes over plant under the provision hereof, and if, after the expiration of three year period from this date, party of second part is continuing the production of benzol and toluol, party of first part is to have the option of purchasing from party of second part for period of three years quantity of benzol and toluol equal to the capacity of party of first part plant at the market price from time to time during each year, provided however that in event market price at any time is not satisfactory to party of second part, party of second part shall have the right to decline to sell and store its products awaiting a market price that is satisfactory to it.

IN WITNESS WHEREOF, party of first and second parts have hereunto set their signatures in duplicate, this 15th day of March, 1915.

Thos. A. Edison
Party of first part.

WOODWARD IRON COMPANY.

By A. H. Woodward
Vice President.
Party of second part.

(Corporate Seal)

ATTEST:

R. H. Bomister
Secretary

2585

Chemicals



March 18, 1915

Mr. Pullin:

I attach hereto a copy of contract entered into by Mr. Edison between Thomas A. Edison, Inc. and the Heyden Chemical Works, 126 William St., New York City, by which you will note that we are to furnish that Company with Carbolic Acid until July 1, 1915 at the rate of 100 lbs. per day, Sundays and holidays not included.

This of course you will ship in the large drums once a week.

Messrs. Bokert and Philips will note that the price and terms for this material are 85 cents per lb. net without any discount for cash, f.o.b. Orange, N. J., payments to be made every two weeks for shipments made within that period.

Mr. Pullin will further note that whenever a drum of this material is ready for shipment, it should be brought to Orange and it will there be taken up by the Heyden Chemical Works' truck which brings to us from time to time Formaldehyde. In no case, unless they advise us differently, are we to ship this material except by their truck.

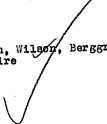
Please notify our Purchasing Department each week when a drum of this material is ready at Orange so their truck can call and get it.

A standing requisition should be issued to cover the weekly shipments and each week as shipments are made, part-shipment copies of the requisition should be issued for billing purposes and these part-shipment copies and also the original requisition should plainly state what the charges are to be made for the drums at cost, and when returned in good condition, freight charges prepaid, credit will be allowed.

H.L.BB

H. T. Leeming

Copies to Messrs. Edison, Wilson, Berggren, Philips, W. L. Bokert, Cheshire



IP. IND.



TESSITURA

The Ottolina & Co.

ASSO

Nostro ultimo
Nostro devoto

Regista vostra
Vostro onorario

9963

ASSO, May 15th
TESSONO N.O. (Italy)

1918

To the Manager

Thomas A. Edison Dye Works
Silver Lake

*Say I only make
Sulphur Black, Blue & Olive
people here with
assist. colorants of
New Jersey. Pat. in life for
making of dyes*

U.S.A.

TELEGRAMMI: TESSITURA ASSO
CASE 57, TESSONO N.O.

At present I have said all I
can make of Sulphur Black
but may later ^{Dear Sir,} all more

We understand you are producing colouring stuffs
for Cotton Yarn dye.

Being large consumers of Sulphur Black, Blue and Olive we
would feel obliged to you for putting before us your offer with
cheapest cash prices.

Kindly forward also some sample lbs. for testing which you
may invoice plus respective charges.

Awaiting your kind news, we are, Dear Sir,

Yours truly

The price of the sulphur black ^{is} ~~is~~
varies from 35 to 50 cents
per pound

Say to those who ask if ~~it~~ has agent say
~~no~~ no

P

June 7th. 1915.

Flli Oltolina & C1.,
Asso, Italy.

Gentlemen:


Your favor of the 15th ultimo has been received, and in reply I beg to say that I do not make the colors, but only Aniline Oil and Aniline Salt, which our people here use with acid and Chlorate of Potash for making blacks on textiles. At the present time, I have made contracts for all the Aniline Oil and Aniline Salt that I can make this year, but later on I may possibly enlarge my plant and sell more.

Yours very truly,

see me $\frac{1}{2}$ Cannon Goldies

2 More Hertzog stills for
Canada —

Bring drawings up to date

1 = new lid 

2 = Oil tube longer, dipping a little
deeper in ~~the~~ oil = note if
sluff in the oil deposits on
floor below mouth of tube can
it be cleaned away — yr.

3 = Tube on bottom section
deeper in oil — yr.

4 = Bigger hole in side full hand
or other suggested improvement

X - 3 absorbing towers
12 dia 40ft high -
Exhauster, with house over it

Pipe everything to GG

GG is Drip of Cambria
best with 2 54 inch Hertz
still & 2 Reg stills -

Leaves room to put 6 Hertz
& 4 Refining stills all
told -

and 3 times the storage
of Benzol & Toluol

The other storage of
absorbing oil sulphur
etc about twice that
of Cambria —

~~Pumps to be able to~~
Pumps about same
as Cambria —

115

Estimate cost of plant for absorbing
and Purifying Benzol from 2000 Tons
Coal per day—

2	Engines + Exhausts complete	4400
6	Absorbing Towers "	8000
	Gas piping Estimate	1660
	Building	4000
10	Pumps	900
	Tanks in building - 2S-4H-4D-4C-4SR-5CL	5500
18	Tanks for storage etc	3500
2	acid stills	1800
4	Henzel Columns @ 1000	4000
2	Steam stills 2600	5200
	Piping	2500
	Structure + mechanicals	6000
		<u>\$ 46900</u>

Duty — ?

with

	During War and 3 months after peace	6 months after peace	9 months after peace	12 months after peace
Melol	\$ 10.00	\$ 9.00	\$ 8.00	\$ 7.00
Glycin	9.00	8.00	7.00	6.00
Hydroquinone	5.00	4.00	3.50	3.00
Pera-amido-phenol	5.00	4.50	4.00	3.50

	Cost of production at war prices
Melol	\$ 6.00
Glycin	5.00
Hydroquinone	2.00
Pera-amido-phenol	2.50

	Cost of production normal C
	\$ 2.00
	\$ 2.00
	.50
	.80

	drawing cover & 3 small shuffler pens	6 month of pen	9 month of pen	12 month of pen
Metal	\$ 10	\$ 9,00	\$ 8,00	\$ 7,00
Glycerin	9	8	7	6
Hydrogen	\$ 5	4	3,50	3,00
Paranidylpent	5	4,50	4,00	3,50

	cost of production	wrap price	material
Metal	\$ 6,00		2,00
Glycerin	5		0,50
Hydrog.	\$ 2,00		0,80
Paranidylpent	\$ 2,50		1

Glycine
Paracetamol
Hydroquinone
Metal

~~Paracetamol~~ ✓

Metal

100,000 lbs. per year production
Raw material required per day

1270 lbs phenol

450 " Chloroacetic Acid - ^{Downs Methanol Co}

200 " Acetylated alcohol. 65 cent gal

Some Nitrite of soda & Hydrochloric Acid
3 1/2 cent

12 units \$ 50,000

\$ 55,000 including
production of about 25,000 lbs of
Paracetamol.

Chemicals

Hydroquinone

20000 lbs. pr. year production
Raw material required pr. day
812 lbs. bottles

180 " Ethyl Acetate

4800 " Sulfuric Acid 66°

1900 " HNO_3

1700 " Iron Borings

\$ 70,000

Benzidine

Cambridge Plant

	1	Ex Lamin Eng ^{#2} 2125.00	1	Buildng Benzol @ 60.00	
	1	Exh. Eng. Bldg (C)	2	oil Pump - 44.00 =	704.00
	1	Exh. Eng. Found (C)	1	acid Pump @ 200.00	
	1	Saw Mill 20' x 3' 6"	1	sump Pump P	
	1	Ammonia Bldg (C)	1	del. Pump. P	
	3	Power. complete @ 60.00 =	1	50' dia. acid still	
	1	Power Foundation (C)	2	Wingel still	
	12	12 I - 22.00	2	Body still	
	24	x x 46 Plate @ 60.00 =	1	Acid still	775.00
	600	ft. 2" x 1/2" x 3/4" wire @ 15.00 = 255.00	1	Bld. Found (C)	
	200	ft. 2" x 1/2" x 3/4" wire @ 15.00 = 97.50	1	Radiat. Cond Found (C)	
	2	Raw tank D: 600 gal heat @ 172.00 = 172.00	1	Storage Tank Found (C)	
	2	Operating. 240.000 gal - 69.00 = 132.00	1	Operating Tank Found (C)	
	1	Raw tank E: 600 gal heat @ 172.00 = 172.00	1	Phenol tank Found (C)	
	5	1 Heavy oil X ^{#2} = 4000 gal heat @ 172.00 = 172.00	Phenol tank	2-6000 gal tank @ 172.00 = 1032.00	
	1	Acid tank 2000 (C) @	1	Water Pump tank @ 72.00	
	2	1 All Tank 2000 (C) @	2	Storage Tank @ 72.00	
	1	Acid 2000 gal 600 gal heat @ 172.00	2	Hyd. Tank @ 172.00	
	1	500 gal Benzol 600 gal heat @ 172.00	1	Oil. heat tank @ 172.00	
	1	Raw Benzol 4000 gal heat @ 172.00	2	Still @ 172.00	
	1	Wingel still 6000 gal heat @ 172.00	2	Cond. @ 172.00	
	5	1 S.C. Fuel tank 6000 gal heat @ 172.00	4	Condens. @ 172.00	
	1	Washng Benzol 2500 gal @ 115.00	1	Exp. Dept @ 172.00	
	1	Washng Tol " " @ 115.00	1	Exp. And @ 172.00	
	3	1 Washng Xyl. " " @ 115.00	2	Condens. (Steam Still) @ 222.00 = 3676.00	
	1	Washng. 6000 gal @ 172.00	1	Tank car. Washng. (Washng. Tank) =	
	2	1 Washng. 6000 gal @ 172.00	1	Tank car. Washng. (Washng. Tank) =	
	1	Washng Benzol 6000 gal @	Oil Pipe		
	1	Washng Tol (C) @	Water Pipe		
	1	Washng Xyl. (C) @	Steam Pipe		
	20	Foot 3	15	Ton. scale	

- 15 Gauge Glass for storage tanks
5 Gauge Glass for distillation
6 Gauge Glass for ~~for~~ still
3 Gauge Glass for storage tank
1 Gauge Glass for acid still.
60 gauge work + glass connection for glass 1" Pipette.

Pure Benzyl entirely distilled 50-51°C: 176°-178°F. - 331-334
 Pure Toluol " " 110-112°C: 230 - 232°F. - 175-177
 Pure Xylol " " 175-178°C: 345 - 348°F. 81
 Solvent Mixture (Benzol) 90° distilled under 160°C - 320°F.
 Heavy Residue (Benzol) 85° " 100°C: 210°F.

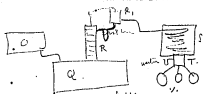
Good for Benedict test.

Commercial Benzol passed 90° (when white in can. 90° was distilled
 " Toluol " 90° (do @ 120°C. 250°F.)

Refused Benzol even treated to make it white.
 Check passed with out any light but gradually turn white

evaporative residue on most of plates 2-4. 2 C.S. at same time
 Pure Benzol 100% 136°
 70 14
 50 23
 Pure Toluol 24
 Commercial " 37
 Xylol 29
 Solvent Mixture 101
 Benzol 17
 " Toluol 26
 Benzol 14
 heavy Xylol 302
 Toluol 142
 80° Benzol 4
 70° " 8
 60° Benzol 16
 50° Benzol 346

Benzol @ Pure 50-51°C - 111-112° Solvent Mixture
 " 100° 100°F 100°C - 211-212°
 90° 90°F 100°C - 211-212°
 50° 50°F 100°C - 211-212°
 Toluol. 110°-112°C - 230-232°
 Commercial Benzol 90° @ 110°C - 230-232°
 Xylol. Pure 175°-178°C - 345-348° 81°F.
 Solvent Mixture 90° @ 100°C - 211-212° 75°F.
 Benzol 85° Benzol 10% - 162°-170° Benzol Mixture
 Toluol. " Commercial - 162°-170°
 Benzol 87°-100° 78°F.
 heavy Xylol 215° @ 200°C - 395-398 100°F.
 Pure Benzol evaporating at a same time
 @ 50°C.



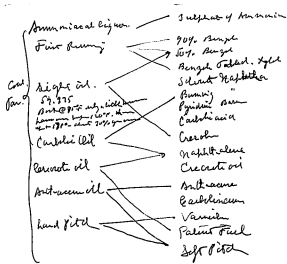
Quantum of R_1 depends on Reaction Temperature
 the endow V_0 tank for pressure etc.

Residue of Q is returned mixed into Q and
 Temp of Q is maintained at $115^\circ C$. Above this temperature

1000 Tons coal yield 775 Tons coke
 10 Tons tar 7.6 Tons gasifier residue and 1000 tons
 containing 1000 gal benzene

The Q is $115^\circ C$ may be lowered by 1000 tons

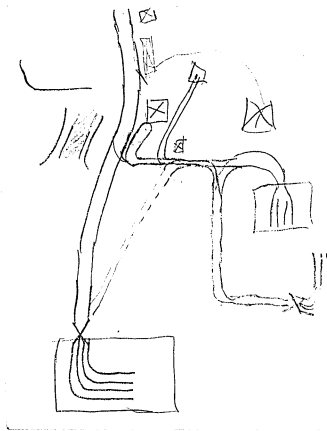
Coal Tar + Ammonia surge.



Naphthalene used as disinfectant to draw along
water + ammonia, as a drug for wound with vaselin.

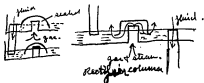
Carbolic acid taken over the 8 hours (carbolic acid)
and the pyridine base

Sulphur and tar are parts of Phenol



Refinery design for alcohol distillation
 for condensing and refluxing, attained by the alcohol and
 thereby strengthening the liquor

- 1- Reflux must travel slowly
- 2- Reflux must be very gradual
- 3- A slight current of vapor and cooling liquid should be sent.
- 4- The alcohol is lifted over from a coil to a
 vapor jacket of ethanol and the vapor must travel
 the same way from a column to a column distillation



Each joint of $\frac{1}{8}$ " union nuts covers since end of line

End over to condenser to end 3"

End of $\frac{1}{8}$ "

2" line from ~~section~~ section to still.

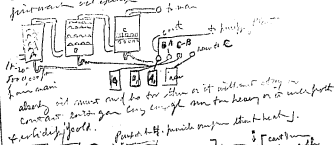
Don't forget thermometers set on place.

Essential process - Gas is pulled off gas main right the
 Town & Community Gas by the reactor. It is being sent to 77°F.
 Gas goes through the separator tank on 10-gal tank
 for 10 min. of settling allowing oil to sink down
 by action of water. Each part of the water and should
 be opened and emptying distribution can be done.
 The oil & benzolite absorbed an electric or vapor
 for each column. The raw oil is purer than the 2nd.
 We remove dirt from the gas - then get the last of it
 you must have benzolite for the last but can't oil -
 the final wash oil after the benzolite and other columns
 collected and stored in tank for purifying. The gas
 after the last column is sent back to main gas
 after being the last column is sent back to main gas

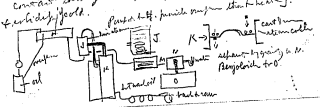
The wash oil is sent to a separator tank
 with night freeze possible in the tank. Look to clean
 atmosphere tank from the floor by ground the way below
 to a heated the tank half around water pipe coming the
 Benzolite to get out the heat from the tank and it will
 ready feed line steam & then down into the water & Benzolite
 leaving the wash oil ready for use for some gas
 of Benzolite & Benzolite. The wash oil runs down from
 the heater into the Benzolite tank. The wash oil runs down from
 into a chest with Benzolite on top. The wash oil runs down from
 men & one of the Benzolite is just down out into
 and we can't see the gas tank when it is cut off down
 to at least 100 ft. The Benzolite will not be
 to the Benzolite gas out of the tank to the wash oil. With the Benzolite

Coke can gas has about 4% or more benzene
 some an ill gas
 liquid obtained in the distillation contains 25-60%
 of benzene and toluene

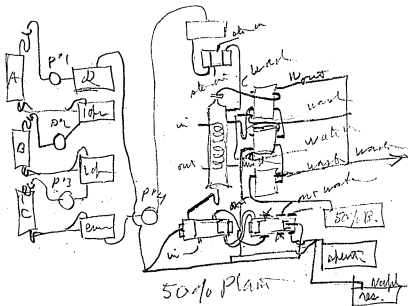
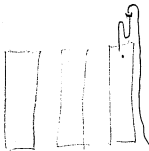
Separate benzene from toluene by means of air column
 this gives the olefins & the benzene blow down
 This process has been successful by distillation
 using packed acid section
 cost of plant & labor less than 20,000,000
 Oil washed & to safe hold 16-24 hours
 first wash oil column - 2 additional bed system and shifter



air must not be too slow or it will not do any
 work. cost of extra gas very cheap since the heavy is at under part
 & will drop to cold.



cost of extra gas
 when trying to do
 benzene to 0



30 000 g
acid H_2SO_4

10 000 g

(Benz)

(Benz)

10 000 g

5-4? sterin

50 Tons

6'x8'

lining tanks

Amplifying Pts
555 liters Benz
860 H_2SO_4 liters
Wt 1400 98% dry

7'x2'x0"

Displacement tanks

7'x6"

7'x6"

7'x6"

7'x6"

Carbonating the Benz
600 Sol
2 inch $210 CO_2$

7'x2'

7'x2'

displacing Sol from carb lines

8'x4'x10" deep

8'x4'x10" deep

wrap water from Benz
no
8'x4'x10" deep

Crushing Rolls

caustic Bin

Blower

10' dia

10' dia

10' dia

Pots
5' dia 26" deep

8'x5'x4' deep
cooling
fast
trans.

15

M

G

I

10' dia

10' dia

Phenol Bells

7'x2'x10"

7'x2'x10"

7'x2'x10"

7'x2'x10"

7'x2'x10"

7'x2'x10"

lining side after Phenol removed
Flusion to counter body
Pans 8'x4'x10" deep

displacing Sol from lines

? Pump in 2" line
to Naptha storage from
 $W_1 + W_2$

? Naptha storage tanks

Naphthalene Pans shown on in dotted
lines on B.P. 2020 —

What are they? size, shape &
where are they, as they are not on list of
material & cost:

How are they to be placed with reference
to the bottom of Badger Seals? and their
elevation with regard to same seals:

How does the oil get from the Badger Seal
to Naphthalene Pan ~~from Badger Seal~~
taking the Dominion Jr Steel Co's location
Please make sketch showing points and
elevation which can be needed to Sydney

From the Laboratory

of

THOMAS A. EDISON

ORANGE, N. J. Feb. 1st, 1916.

Arrangement agreed to between Mr. Edison and Mr. Plummer

February 1st, 1916.

Benzol to be supplied by Dominion Iron & Steel Company to Edison under the old contract, at 25¢ per U. S. gallon. Freight and duty to be paid by Edison on delivery. 20,000 gallons monthly to be delivered to Edison under old contract. Edison to make an additional contract to take from Dominion Iron & Steel Company 5,000 gallons additional per month, or 10,000 gallons if the company can supply it, starting in February and continuing to December 31st, 1916. The price to be paid by Edison for this additional Benzol is 59¢ per gallon at the Steel Company's Plant. Edison pays duty and freight to Orange. Edison to supply tank cars at regular intervals to the Railroad for delivery to Sydney.

Nothing herein to abrogate conditions of old contract as to the three years or the royalty.

J. H. P.

T. A. E.

Water used by Amherst Division

July-31	1,269,900 cu. ft	90-1000
Aug-31	1,337,800	" "
Sept-30	1,297,700	" "
Oct-31	1,664,300	" "
Nov-30	1,580,100	" "
Dec-31	2,058,030	" "
Jan-31	2,524,228	" "
<u>7 months</u>		
	9,460,058	
	39,107,200	
	<u>48,567,258</u>	
	7,069,650	(over)

*This is only one meter
in the Amherst
Division, and the full
for the 1899-1900
Antoni's Bureau
W. Weston
3/8/16*

Mr. Kellow, -

Herewith please find
record of water charges to the
Aulic Division by the Carbolic
Division. This is in accordance
with your request of recent date.

A. McKerson 3/11/16

INTER DEPARTMENTAL MEMORANDA, Form 1101

3/17/46

File

Subject

Mr. Nickerson

Thank you for attached. Will you please show rate, so I can figure the money cost? Also, will you be good enough to get the same information for the Philal Plant?

R.W. Keenan

Mr. Austin format
pls rate + format
information desired
at per as per memo
H.W. 3/17/46

Mr. Keenan
The charge for work
to Philal Plant is \$100.00
No charge for work
to Philal Plant is \$100.00
No charge for work
to Philal Plant is \$100.00

File

Subject WATER COSTS-ANILINE & PHENOL PLANTS. Date

Mr. COPY OF MEMORANDUM TO MR. MAMBERT ON HIS NOTATION TO MR. MILLER
DATED 2/1/16.

"MR. MAMBERT:

"9,069,850 cubic feet of water were used by Aniline and Phenol Plants of T.A.E., Personal, over period July 1st, 1915, to January 31st, 1916, according to charges made by Edison Carbolite Division of T.A.E., Incorporated. This period covers 215 calendar days and the water is charged at 90¢ per 1,000 cu.ft., which makes the cost per day \$37.97.

"R. W. Kellow

"3/22/16."

Benzol Process - Per W. H. Mason 17496

1st Operation:

Absorption = Light Oil

2nd Operation:

Distilling = 90% Benzol Benzol

90% Solvent

90% Solvent Naphtha

Residue = Naphthalene acid straw (Absorbed)
air, which is returned to system

3rd Operation:

Washing (with acid and Alkali) = 90% Washed Benzol Benzol

90% " Solvent

90% " Sol. Naphtha

4th Operation:

Redistilling =

From Benzol { Heads
Pure Benzol
Benzol & Solvent Mixture

From Solvent { Benzol & Solvent Mixture
Pure Solvent
Solvent & Solvent Naphtha

From Solvent { Solvent
Naphtha { Purified Naphtha

5th Operation:

Redistilling Heads = { Heads
90% Benzol
Some Pure Benzol

} About
25%
Shrinkage
(as to 9%)

Get monthly statement of raw material
on hand and figure average cost per
gallon and value.

Inventor^{month}y of various products on hand.

Set up "Work in Process" acct properly and
clear monthly.

Get monthly record of various raw materials
consumed ~~to~~

Carry raw material account of Dept. here.

Charge all operating labor into "Work in Process"
acc. as well as all raw material consumed,
supplies, expenses.

May 16, 1916.

Copy to Mr. Kellow.

Mr. A. C. Emery, Purchasing Agt.,

Orange, N. J.

Dear Sir:-

I am enclosing you herewith statements showing daily and weekly requirements of Raw Materials for both the Aniline and Phenol Plants, in accord with my promise a few days ago.

Yours very truly,

W. H. Dawling

Manager.

[ATTACHMENT/ENCLOSURE]

DAILY AND WEEKLY REQUIREMENTS OF RAW MATERIALS FOR ANILINE DIVISION

<u>MATERIALS USED</u>	<u>QUANTITY PER DAY</u>	<u>QUANTITY PER WEEK</u>
Benzol	1000 gals.	7000 gals.
Mixed Acid	24500#	171500#
Hydro Chloric	1200# - 22°	8400#
Iron Filings	8000#	56000#
Lime	300#	2100#
Zinc Dust	5#	35#
Acetic Acid	400#	2800#
Sulphuric Acid 98%	1700#	11900#
Caustic Soda	300#	2100#
Coal	5100#	35700#
Soda Ash	200#	1400#
Fuel Oil	25 gals.	175 gals.
Bone Black	175#	1225#

May 16. 1916.

[ATTACHMENT/ENCLOSURE]

DAILY AND WEEKLY REQUIREMENTS OF RAW MATERIALS FOR PHENOL DIVISION

<u>MATERIALS USED</u>	<u>QUANTITY PER DAY</u>	<u>QUANTITY PER WEEK</u>
Oleum	20537#	143759#
Common Salt	11880#	83160#
Calcium Chloride	308#	2156#
Benzol	1650 gals.	11580 gals.
Caustic Soda	14500#	101500#
Scheel Salt	735#	5145#
Coal (Soft)	5000#	35000#
" (Hard)	4000#	28000#
Coke	2000#	14000#
Chamber Acid	9685#	67795#
Sulphuric Acid 98%	3000#	21000#
Nitro Cake	--	--
Ammonia	7#	50#
Fuel Oil	25 gals.	175 gals.

May 16, 1916.



Mr. Gann

Will you please give me a memo of the various departments of Laboratory from whom you receive pay rolls, stating the name of person who signs each?

Re: Reed

Experimenters	Labr	Executives	Mambrat
Machinists + Toolmakers		Music Room	Meadowcroft
Engineering	Constable	Pattern Shop	Mudd
Drafting - 2 nd Floor	Simpson	Chemical Room	L.F. Ott
3 rd Floor Tool Design and Listing	O'Leary		Q.A. Monitor

MIITSUI & CO., LIMITED

New York, October 20, 1916

Thomas A. Edison, Inc.,
Orange, N. J.

Attention of Mr. W. H. Meadowcroft.

Gentlemen:

Confirming our conversation at your office yesterday.

we thank you for your agreement to take the entire production of
Benzol from Woodward Plant during the year 1917 at the price of
47-1/2¢ per gallon, f. o. b. Silver Lake, N. J.

Yours very truly,

MIITSUI & CO., LIMITED

By Shunzo Takaki
Assistant Manager

ANILINE DIVISION
THOMAS A. EDISON
SILVER LAKE, N. J.

November 28th, 1916

Mr. R. W. Kellow,

Laboratory:

As per your request of your memo. dated 11/24, we have attached here list covering the buildings of the several plants included in this division and opposite each we have shown the building number which you requested to have forwarded to you.

If there is any further information that we can get for you in reference to same, please advise and we will forward same to you promptly.

J. T. Phelan,


Manager.



NOV 28 1916

[ATTACHMENT/ENCLOSURE]

ANILINE, PHENOL, AMIDOPHENOL & BENZIDINE BUILDINGS

<u>BUILDINGS</u>	<u>NUMBER</u>
Aniline	211
Phenol (Operations 1,2,3,4)	212
" " 5,6,7,8,9)	213
" " 10	214
Aniline Boiler #1	215
Office	216
Aniline Salt	217
Wash House	218
Stock room and Machine Shop	219
Aniline Boiler #2	221
Blacksmith Shop	222
Phenol Recovery	223
Hose House	224
Sump House	225
Laboratory and Carpenter Shop	226
Phenol Carbonating Plant	227
Oil House	228
Causticizing Plant	229
Lime House	233
Garage	232
Amidophenol Plant	234
Scale House	236
Hydrochloric Plant	237
Benzidine Plant	235



December 4th, 1916

PERGHAL

SUBJECT: Schedule to cover Raw Materials for Month of December

Mr. A. C. Emory,

Purchasing Service Dept:

We have attached here a new schedule of the daily requirements of raw materials for the month of December which will hold good until further notice.

You will note that on account of the anticipated increase in production of Paraphenylenediamine we have increased the quantity of Glacial Acetic Acid required per day to 1,000 pounds. We have also, account of the reduction in the Aniline Plant, shown the new schedule of the delivery of Mixed Acid and Emulol.

³¹⁶ Please call these new figures to the attention of the men in your department looking after the delivery of these raw materials so as to avoid confusion.

J. T. Phelan,

Manager.

[ATTACHMENT/ENCLOSURE]

RAW MATERIAL REQUIRED PER DAY DECEMBER 1916
IN THE OPERATION OF THE ANTIMONY, ANILINE & PHTHAL PLANTS

NAME	ANTIMONY	ANILINE	PHTHAL	SOAL
Ioo	2-1/2 tons	1-ton		3-1/2 tons
Nitrite of Soda	200#			200#
Caustic Soda	1000#		25000#	25000#
Soda Ash	300#	300#		600#
Salt	200#		14500#	14700#
Zinc Dust	400#	5#		405#
Hydrochloric Acid 22%	3000#	2000#		5000#
Bone Black	50#	70#		120#
Tin Dust	25#			25#
Mixed Acid		1100-gals		1100-gal
Benzol		650 "	1700-gals.	2350 "
Iron Filings		9000#		9000#
Lime		200#		200#
Coal		2-tons	2-tons	4-tons
Acetic Acid (Glacial)		1000#		1000#
Acetic Acid 28%		200#		200#
Sulphuric Acid 98%		250-gals	500-gals	750-gals
Clom 60%			24000#	24000#
White School Salt			500#	500#
Coal (Hard)			3-tons	3-ton

KNOW ALL MEN BY THESE PRESENTS:

That the undersigned, Thomas A. Edison, of the Town of West Orange, in the County of Essex and State of New Jersey, does hereby make, constitute and appoint STEPHEN B. MAMBERT, of the City of East Orange, in the County of Essex and State of New Jersey, his true and lawful attorney for him individually and for the account of whom it may concern as their interest may appear, to sign and verify all Proofs of Loss for or in connection with the fire which occurred on October 10, 1916 at the Aniline and Phenol plants of the undersigned located at Belleville and/or Bloomfield, New Jersey.

And the undersigned hereby gives and grants unto his said attorney full power and authority to do and perform all and every act and thing whatsoever requisite and necessary to be done in connection with the prosecution and collection of the undersigned's claim for insurance because of said fire, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution and revocation, hereby ratifying and confirming all that the said attorney, or his substitute, shall lawfully do, or cause to be done, by virtue hereof.

IN WITNESS WHEREOF, said Thomas A. Edison has hereunto set his hand and seal this day of Dec. 1916.

(L.S.)

Sworn to and subscribed before me
this day of Dec, 1916.

1 AGREEMENT dated the 15th day of January, 1917,
2 between THE REPUBLIC OF FRANCE (hereinafter called the
3 "Buyer") and THOMAS A. EDISON, with an office at Orange,
4 New Jersey, United States of America (hereinafter called
5 the "Seller"), WITNESSETH:

6 That the parties hereto have agreed and do here-
7 by agree as follows: That the Buyer has contracted to
8 purchase from the Seller and the Seller has contracted to
9 sell to the Buyer, at the price and upon and subject to
10 the terms and conditions following, viz:

11 ARTICLE: Phenol.

12 SPECIFICATIONS: It is understood that the phenol will con-
13 form to the following specifications: That it will contain
14 not less than ninety-six per cent (96%) of absolute phenol;
15 that it shall have a fusing point above 39° C., and at least
16 ninety per cent (90%) shall distill at a temperature not
17 greater than 182° C. It shall be soluble in 19.6 parts of
18 water at 25° C., and shall otherwise conform to the tests of
19 the United States Pharmacopoeia, Eighth Decennial Revision,
20 with additions and revisions to June 1, 1907.

21 QUANTITY: Nine hundred thousand (900,000) pounds of such
22 phenol.

23 PRICE: Forty-nine cents (49¢) per pound of such phenol de-
24 livered free on board cars the Seller's plant with freight
25 charges prepaid and borne by the Seller to New York City.
26 No additional price shall be paid by the Buyer to the Seller
27 on account of any Federal or other tax of any kind.

28 PACKAGES: The phenol hereby contracted for shall be con-
29 tained by the Seller, without cost to the Buyer, in metal

30 drums suitable for ocean carriage and of such construction
31 and fastening as reasonably to assure the transportation of
32 the phenol undamaged to point of destination, each such drum
33 to contain approximately 250 pounds of such phenol and to
34 conform to the latest Interstate Commerce regulations with
35 respect to the transportation of phenol. The drums shall
36 be marked by the Seller in such manner as the Buyer may di-
37 rect and shall become the property of the Buyer.

38 TIME OF DELIVERY: The Seller agrees to deliver the phenol
39 hereby contracted for or to have such phenol completely manu-
40 factured in accordance with the requirements of this agree-
41 ment and ready for final inspection as follows: One hundred
42 and fifty thousand (150,000) pounds during each of the months
43 of January, February, March, April, May and June, 1917, it
44 being understood that delivery of the entire Nine hundred thousand
45 (900,000) pounds of phenol hereby contracted for shall be
46 completed by June 30, 1917.

47 With the written approval of the Buyer, the Seller
48 shall have the right and, if requested by the Buyer in writing,
49 shall use its best efforts to deliver the phenol hereby con-
50 tracted for in advance of the respective dates and in excess
51 of the respective quantities specified in the above schedule
52 of deliveries until all of the phenol hereby contracted for
53 shall have been delivered. Any phenol the delivery of which
54 is so anticipated hereunder shall be credited against subse-
55 quent deliveries specified in the above schedule of deliver-
56 ies, or, at the option of the Buyer, against then existing
57 arrears.

58 Time is of the essence of this agreement and, accord-
59 ingly, the Buyer at its option may at any time, or from time

80 to time, refuse to accept and pay for any of the aggregate
81 quantity of phenol required by the above schedule of deliver-
82 ies to be delivered or to be completely manufactured in ac-
83 cordance with the requirements of this agreement and ready
84 for final inspection at the end of any month named in the
85 above schedule of deliveries and/or at June 30, 1917, which
86 the Seller shall fail to have delivered or to have complete-
87 ly manufactured in accordance with the requirements of this
88 agreement and ready for final inspection, as required by the
above schedule of deliveries at the end of any such month
and/or at June 30, 1917. The failure of the Buyer to exer-
cise any of the above rights of cancellation of late deliv-
eries shall not be deemed to be a waiver by the Buyer of
any of said rights of cancellation of late deliveries there-
after accruing. The exercise of any such right of cancella-
tion of late deliveries by the Buyer shall not affect the
respective obligations of the Seller or the Buyer hereunder
to deliver and to accept subsequent instalments specified
in the above schedule of deliveries.

89 In the event the Seller shall fail to have deliver-
90 ed or to have completely manufactured in accordance with the
91 requirements of this agreement and ready for final inspection
92 by March 31, 1917, at least fifty per cent (50%) of the aggre-
93 gate quantity of phenol required by the above schedule of de-
94 liveries to be delivered, or to be completely manufactured in
95 accordance with the requirements of this agreement and ready
96 for final inspection by March 31, 1917, unless such failure
97 on the part of the Seller shall have been due to delays caused
98 by strikes, fires, explosions, riots, acts of God or other

89 similar causes beyond the Seller's reasonable control, or to
90 delays caused by the Buyer, the Buyer at its option may, with-
91 out liability to the Seller terminate this agreement in its
92 entirety except with respect to any phenol hereby contracted
93 for then delivered or then completely manufactured in ac-
94 cordance with the requirements of this agreement and ready
95 for final inspection.

96 The failure of the Buyer to exercise any right of
97 cancellation provided for in the preceding paragraph shall
98 not be deemed to be a waiver by the Buyer of any said rights
99 of cancellation thereafter accruing.

100 The above rights of cancellation shall be in addi-
101 tion to and not in exclusion of any other rights, claims or
102 remedies which the Buyer may have against the Seller growing
103 out of the failure of the Seller to deliver phenol hereunder
104 at the respective times and in the respective quantities
105 specified in the above schedule of deliveries.

106 It is also understood that the Seller shall not,
107 without the written permission of the Buyer, deliver any
108 monthly shortage of phenol in any subsequent month.

109 MODE OF DELIVERY: Delivery shall be made by the Seller to
110 the Buyer, free on board cars at Seller's works, with freight
111 charges prepaid and borne by the Seller to New York City.

112 In the event the Buyer desires to divert the de-
113 livery of any of the phenol hereby contracted for from New
114 York City to other United States port or ports and gives
115 prior written notice to the Seller to this effect, the
116 phenol covered by said notice shall be shipped by the Seller
117 to such other United States port or ports and the Seller
118 shall prepay the freight charges on such shipment, it being

119 understood and agreed, however, that in case the cost of trans-
120 portation of such phenol from place of manufacture to such
121 other port is above or below the cost of transportation of
122 such phenol from place of manufacture to New York City, the
123 Buyer shall pay to the Seller and the Seller shall allow to
124 the Buyer any such increase or decrease, respectively, in
125 said cost of transportation.

126 TERMS OF PAYMENT: The entire purchase price of any particular
127 lot of phenol hereby contracted for shall be paid by the Buyer
128 to the Seller within ten (10) days after presentation to the
129 Buyer, at the office of Messrs. J. P. Morgan & Co., 23 Wall
130 Street, New York City, of proper invoices and certificates
131 of inspection and acceptance with respect to such lot of
132 phenol executed by an inspector of the Buyer approved by en-
133 dorsement of the French Mission in New York, accompanied by
134 railroad bills of lading (marked "Lighterage free - for
135 Export") showing delivery of such lot of phenol f.o.b. cars
136 Seller's works, with freight charges prepaid to New York
137 City or other port, as above provided.

138 INSPECTION: It is understood and agreed that the phenol here-
139 by contracted for is subject to inspection at the works of the
140 Seller by an inspector or inspectors of the Buyer and to ac-
141 ceptance by the Buyer after such inspection. The Seller
142 agrees to afford to such inspectors the fullest opportunity
143 and adequate facilities for making such inspection and tests
144 of the phenol as the inspectors deem necessary in order to
145 ascertain its compliance with the requirements of this agree-
146 ment.

147 STORAGE: Upon written request from the Buyer the Seller agrees
148 to store, at the Seller's expense and risk for a period of not

149 to exceed thirty (30) days, any quantity of the phenol hereby
150 contracted for which is then completely manufactured and ready
151 for delivery hereunder. An advance payment equivalent to
152 ninety per cent (90%) of the purchase price of any phenol so
153 stored shall be paid by the Buyer to the Seller within ten (10)
154 days after presentation to the Buyer, as aforesaid, of certifi-
155 cates executed by an inspector of the Buyer certifying that
156 such phenol complies with the requirements of this agreement
157 and certificates executed by an authorized officer of the
158 Seller setting forth that such phenol has been placed in
159 storage by the Seller, together with a bond or guaranty
160 satisfactory to the agents of the Buyer executing this agree-
161 ment on the Buyer's behalf to the effect that the Seller shall
162 repay promptly to the Buyer such part of said advance payment
163 as shall not be absorbed in the manner hereinafter provided
164 by delivery of the phenol so stored free on board cars
165 Seller's works with freight charges prepaid by the Seller to
166 New York City, or other port, as above provided. The payment
167 of such advance payment to the Seller shall not relieve the
168 Seller of its obligation ultimately to deliver the phenol
169 so stored free on board cars Seller's works and to bear the
170 cost of transportation of such phenol from place of storage
171 to New York City, or other port, as above provided. Upon del-
172 ivery of any phenol so stored the advance payment made by
173 the Buyer with respect to such phenol shall be deemed to
174 have been absorbed and the unpaid balance of the purchase
175 price thereof shall be paid by the Buyer to the Seller with-
176 in ten (10) days after presentation to the Buyer, as afore-
177 said, of proper invoices and railroad bills of lading showing
178 delivery of such phenol free on board cars Seller's works

179 with freight charges prepaid to New York City, or other port,
180 as above provided.

181 CONTINGENCIES: The obligations of the Seller hereunder are
182 subject to strikes, fires, explosions, riots, acts of God, war
183 or other similar causes beyond the Seller's reasonable con-
184 trol preventing the performance of such obligations. This
185 provision, however, shall not be construed to modify or
186 limit the several rights above given to the Buyer in the
187 paragraph entitled "Time of Delivery" to refuse to accept
188 and pay for any of the aggregate quantity of phenol required
189 by the above schedule of deliveries to be delivered or to be
190 completely manufactured in accordance with the requirements
191 of this agreement and ready for final inspection at the end
192 of any month named in the above schedule of deliveries which
193 the Seller shall fail to have delivered or to have completely
194 manufactured in accordance with the requirements of this
195 agreement and ready for final inspection at the end of
196 any such month or for any of the entire quantity of phenol
197 hereby contracted for which the Seller shall fail to have
198 delivered or to have completely manufactured in accordance
199 with the requirements of this agreement and ready for final
200 inspection by June 30, 1917, it being understood that these
201 respective dates shall not be postponed by reason of the
202 provisions of this paragraph.

203 DELAYS: Delays in the manufacture of the phenol hereby
204 contracted for caused to the Seller by the failure of the
205 inspectors of the Buyer to inspect such phenol promptly
206 when ready for inspection shall operate to extend the
207 schedule of deliveries above specified in the paragraph
208 herein entitled "Time of Delivery" for the period of delay

209 so caused to the Seller, provided the Seller shall have fully
210 notified the Buyer in writing at the offices of Messrs. J. P.
211 Morgan & Co., 23 Wall Street, New York City, also the French
212 Mission, 10 Bridge Street, New York City, at the time or
213 times of the inspectors' alleged failure so to inspect said
214 articles promptly, of all facts relating to such alleged
215 failure to inspect and of the period of delay in the manu-
216 facture and delivery of the phenol hereby contracted for
217 alleged by the Seller to have been caused thereby.

218 ASSIGNMENTS AND SUB-CONTRACTS: The Seller shall not be per-
219 mitted to assign this agreement in whole or in part or to make
220 any sub-contract for the manufacture of any or all of the
221 phenol hereby contracted for without first securing the
222 written approval of the Buyer of the proposed assignment or
223 the proposed sub-contractor or sub-contractors.

224 CONDITIONS: If by reason of the declaration, passage or en-
225 forcement of an embargo by the United States Government, or
226 other action of its officials or agents, the phenol hereby
227 contracted for cannot be exported from the United States, or
228 in the event of the termination of the present European war
229 or the cessation of hostilities therein upon the part of the
230 Buyer by reason of the signature by the Buyer of a general
231 armistice or otherwise, prior to completion of deliveries
232 hereunder, the Buyer at its option may terminate this agree-
233 ment, but, in such event, the Seller shall be entitled to
234 receive from the Buyer the unpaid purchase price of any
235 phenol then delivered hereunder or completely manufactured
236 and conforming to the requirements of this agreement upon
237 the delivery thereof and in addition thereto to receive from

238 the Buyer a sum sufficient to protect the Seller against the
239 Seller's actual net expenditures and actual net outstand-
240 ing obligations made or incurred with respect to the phenol
241 the delivery of which is so cancelled by the Buyer, such ad-
242 ditional sum, however, not to exceed in any event the pur-
243 chase price of the phenol the delivery of which is so can-
244 celled by the Buyer. In case of such termination of this
245 agreement the Seller agrees to do everything in its power
246 to reduce the amount of the Buyer's said obligation and,
247 for the purpose of determining the amount of the Seller's
248 actual net expenditures and actual net outstanding obliga-
249 tions, shall credit the Buyer with the fair value of any
250 materials, phenol in process of manufacture or other pro-
251 perty with respect to which the Seller shall be entitled
252 to protection from the Buyer under the provisions of this
253 paragraph.

254 ARBITRATION: In the event of any disagreement between the
255 parties hereto as to the compliance of any phenol with the
256 requirements of this agreement, samples of the phenol
257 which is so questioned shall be submitted to an arbi-
258 trator agreed upon by the parties hereto, or in the event
259 the parties hereto are unable to agree upon such an ar-
260 bitrator within ten (10) days, to an arbitrator appointed
261 by the President of the Chamber of Commerce of New York
262 City, which arbitrator shall be a recognized phenol ex-
263 pert. The decision of any such arbitrator shall be final
264 and his fees and expenses shall be paid by the party here-

265 to whose test is so determined to be incorrect.

266 THIS AGREEMENT is executed in triplicate as of the
267 day and year first above written.

268

THE REPUBLIC OF FRANCE,

269

By 

270

Commercial Agents.

271

 (L.S.)

MEMORANDUM OF AGREEMENT by and between ALCAN HIRSCH and MARK HIRSCH, chemists of 50 E. 41st Street, City, County and State of New York, hereinafter called "Hirsch" party of the first part, and the EDISON CHEMICAL COMPANY, organized under the laws of the State of _____ and having its factory and office at Silver Lake, N.J., hereinafter called "Edison" party of the second part, WITNESSETH:

That for and in consideration of the sum of one dollar (\$1.00) by each of the parties hereto to the other in hand paid and receipt of which is hereby acknowledged and other valuable considerations hereinafter recited, it is mutually agreed and covenanted between the parties hereto as follows:

1. It is represented that Hirsch has devised a certain process or combination of steps for the production of phenacetin believed to be novel, each step of which is, however, in commercial operation and giving good yields under known conditions as a part of some other process of manufacture, by which combination of steps beginning with phenol at 50 cents per pound para-amidophenol hydrochloride can at present be commercially manufactured at a factory cost of two dollars (\$2.00) per pound and phenacetin at a factory cost of about four and a half dollars (\$4.50) per pound. This combination of steps has not been disclosed to any other manufacturer. The first step only of making the para-amidophenol and its hydrochloride, is now being used by a manufacturer making and selling these substances and will continue to be so used for a time at least. These representations are material to this contract.

2. Edison has a plant and organization until very recently successfully engaged in making phenol and para-amidophenol and like bodies and spare equipment available for use in making phenacetin and is prepared to purchase new and special equipment not to exceed \$5,000, that may be required to produce 200 pounds of phenacetin a day. It has also in the New Jersey Products Company a subsidiary now capable of marketing its products and purchasing its raw materials at reasonably near the quoted prices current, and has ample capital or credit for the making and marketing of 100 to 200 pounds of phenacetin a day. These representations also are material to this contract.

3. Hirsch agrees to disclose to Edison's selected representations first the full details of said process or series of steps for making phenacetin and state the essential apparatus and conditions to be therein observed and tests to determine the commercial completion of the successive steps and agrees not to make any disclosure thereof to any one else. The disclosure of the para-amidophenol process now actually operated at a cost of \$2.00 per pound for crude hydrochloride ready to enter the phenacetin process, shall not be made until Edison has elected under clause 6 to proceed with the process and assumed the obligation to pay for at least six months' operation, whereupon this disclosure shall be made and this step become a part of the process.

4. Edison agrees to regard the same as confidential and a secret process and not to use the same or so far as it can prevent to permit the use of the same without paying Hirsch therefor as hereinafter provided.

5. Hirsch agrees to furnish free of charge his own personal service for consultation and advice at such reasonable times as may be required during the period of planning, con-

struction and starting of the plant, the said period not to exceed sixty (60) days and to furnish or demand a foreman chemist instructed in carrying out the process to Edison for all or part of his time, as Edison may demand, for a period of ninety (90) days at the rate of a dollar (\$1.00) per hour for the time spent on Edison's work.

6. Edison agrees to exercise all reasonable diligence (a) in testing the process on a small scale and shall within two weeks either definitely elect in writing to use the process and construct the plant for between 100 and 200 pounds a day as described by Hirsch, or else definitely release the process to Hirsch agreeing to use no part thereof for making para-amidophenol or its hydrochloride except only such part as Edison has already been commercially using before November 1, 1916 and no part whatever thereof for making phenacetin, as follows.

(b) If Edison elects to use the process it shall forthwith arrange the plant and construct or buy the additional apparatus required (not to exceed in cost \$5,000, unless Edison prefers to buy or construct more expensive equipment) and shall complete the plant as quickly as reasonably possible to buy the added apparatus within the cost names.

(c) If Edison has elected to use the process it shall secure and train the necessary labor and put the plant in commercial operation step by step as rapidly as reasonably possible.

7. Edison agrees not to permit to pass out of its possession, not to sell or offer for sale any para-amidophenol or para-amidophenol hydrochloride or mixture containing either of these chemical substances made in whole or in part by the process disclosed by Hirsch except only such parts of said process

as Edison has been commercially using before November 1st 1917 which old process Edison shall disclose in writing to W. M. Grosvenor immediately upon the signing of this agreement and he shall be the final judge acceptable to both parties what if any parts of said process Edison has already used.

8. Fifteen days after the close of each succeeding three months period after the starting of the plant Edison agrees to pay Hirsch in lawful money of the United States one-third of the difference between the selling price received (from the user by it or its subsidiaries or brokers, e.g. New Jersey Products Co. for the phenacetin sold) and the average cost of making the phenacetin made during the said three months period, said cost of making to include all material and labor and immediate supervision and control of said process at actual cost of securing same which shall not exceed reasonable costs at prevailing market prices plus an addition of 25% thereof (to cover overhead and selling charges, interest, etc.) and agrees to keep full, clear and correct records of all things necessary to the determination as above described of the amount due Hirsch hereunder.

9. Hirsch shall have the privilege at reasonable times of examining these records and inspecting the operation of that part only of Edison's plant utilized for the carrying out of the processes disclosed hereunder.

10. Edison shall have the right at any time to cease entirely the making of phenacetin by this process upon thirty days written notice to Hirsch of its intention to do so but agrees thereafter for a period of five years not to use any of the steps of this process for the manufacture of para-amidophenol or its hydrochloride or phenacetin that passes out of its possession and until it shall so cease it agrees to pay to Hirsch, as pro-

**Special Collections Series -- Chemical Production Records
Organic Chemical Plant Records
Amidophenol Division (1916)**

These documents relate to the operations of Edison's Amidophenol Plant at Silver Lake, New Jersey, which was built during the summer of 1916. Amidophenol, also known as paramidophenol hydrochloride or p-aminophenol, was used in dyes, photo developing, and pharmaceuticals. The selected items include a technical report on chemical synthesis, along with daily production reports bearing Edison's marginalia. The employees mentioned in the documents include manager James T. Phelan and experimenter Peter C. Christensen.

Less than 10 percent of the documents have been selected. The unselected items include materials inventories, financial and accounting documents, and numerous routine daily reports.

REPORT OF CONFERENCE HELD WITH MR. CHRISTENSEN AT HIS OFFICE
P.M. OCTOBER 17th, 1916.

-----0000-----

Operation 1-a (Normal Dye operation)

Use 210 pounds Base Salt
196 " has been used up to September 27th.

Base Salt Solution

Operation 1-b

264 pounds Aniline Oil
900 " Acid (when using 20)
(A little less when using 22)
85 gallons water
2500 to 3000 pounds Ice (Average about 2800#)

Diazotising Solution

Operation 1-c

264 pounds Phenol
175 " Caustic Soda
300 " Soda Ash
200 " Salt
3000 " Ice

Called ---- Dye

Reduction

There is about six days between each operation. When the batch is finished on Operation 1-a, will write it out at the end of each day and drop his report in a box in the office. Every six days you have a complete record of that batch. Report to be made out then by Mr. Lockhart's clerk and a complete copy to be given to Mr. Christensen in regard to the batch. On Operation 1-b they will do the same thing, in other words report on Operation 1-A will be made to day, - Operation 1-b to-morrow etc. each day, so that at the end of six or seven days you get the entire report as are taken daily from our lot slips. You take the amount we receive and the material we have on hand and the number of batches and that would give you the real total.

1-a goes into 1-c. Dye has a value to us but as yet we have no good way of weighing it.

Neutralizing

Do not know just exactly how much we have in the tank after this has been freed from its Aniline oil. We should get back some oil which we have recovered. We recover a good deal but we are not going to do anything to that at present.
BASE The production gross figure is the 210 pounds base salt. Expect to weigh that later and in fact making arrangements how to weigh it and measure the amount of liquid. On reducing we are going to use steam to blow off the aniline oil then we will be able to tell just how much crude base we will obtain per batch, measuring out

2

the tank. We are having a measuring stick made for this purpose. We ~~expect~~ should get about 204 pounds oil back again. There is possibly a loss of about 3% in the operation. The total amount of oil recovered will be shown on the slips every day.

Neutralizing That is reduced dye neutralized with Hydrochloride Acid and you will have to secure from Mr. Hoffman the amount of H.C. Acid used per batch. It varies so greatly cannot give average figure.

Sodium Sulphite Approximately no value. Only use at the most 3 or 4 pounds. per batch and it costs more for labor to send for it than it is worth. When the stock is exhausted we will have to make it for our purpose alone and then of course it will have a value.

I give you the amount of Bone Black used for the purification and you have the amount of material that we have shipped and that divided into your batches will give an average.

Bone black use about 15 pounds as an average.

Tin Obtain this figure from averaging up the amount of tin used per batch.

AMIDOPHENOL PLANT

THOMAS A. EDISON

Daily Report of Raw Material and Finished Product On Hand

Silver Lake, N. J.

Nov 2 1916

Material	Quantity on Hand	No. of Days' Supply on Hand	Quantity On Order
Bay Salt	5590 ⁴	28	
Aniline Oil			
Hydro-Chloric Acid	16234 ²	13	
Phenol			
Common Salt			
Soda Ash			
Bronz	2870 ²	6	
Ice			
Caustic Soda			

*Mr. Edison, the reason why
 why they don't show any credits is because
 we don't buy any base, and the salt, we made
 one batch was small and turned dark, and
 the other batch was so fine completely
 that it went clean through the centrifuge
 and that one has to be done with
 calculation*

Total Production of Para-Amidophenol	NOV 1 to NOV 2	Incl.	0
Average Daily Production	"	"	0
Average Yield Per Pot Per Day		"	
Per Cent of Yield		"	

AMIDOPHENOL PLANT

THOMAS A. EDISON

Daily Report of Raw Material and Finished Product On Hand

Silver Lake, N. J.

Nov 5 1916

Material	Quantity on Hand	No. of Days Supply on Hand	Quantity On Order
Bay Salt	4960 [#]	25	
Aniline Oil			
Hydro-Chloric Acid	9014 [#]	2	
Phenol			
Common Salt			
Soda Ash			
Bronz	1640 [#]	3	
Ice			
Caustic Soda			
<p><i>Mr. Edson Christensen said - he would have about 75 lbs Hydrochloric today and from 100 to 200 lbs a day after measurement OK WCH 11/7/16</i></p>			
Total Production of Para-Amidophenol	Nov 1	to Nov 5	Incl. 0
Average Daily Production	"	"	" 0
Average Yield Per Pot Per Day			"
Per Cent of Yield			"

(Ch)

AMIDOPHENOL PLANT

THOMAS A. EDISON

Daily Report of Raw Material and Finished Product On Hand

Silver Lake, N. J.

Nov. 10

1918

Material	Quantity on Hand	No. of Days' Supply on Hand	Quantity On Order
Bay Salt	3910#	18	
Aniline Oil			
Hydro-Chloric Acid	Lowanic Storage		
Phenol			
Common Salt			
Soda Ash			
Bronz	10720#	25	
Ice			
Caustic Soda			

de

Breakdown
 What is wrong
 with the
 Hydrochloric Acid
 in the
 storage
 tanks
 on 11-10-18
 10/10/18

Total Production of Para-Amidophenol	Nov. 1 to Nov. 10	Incl.	100%
Average Daily Production	" " "	"	100%
Average Yield Per Pot Per Day		"	
Per Cent of Yield		"	

J. J. P. Pearson

AMIDOPHENOL PLANT
THOMAS A. EDISON

Daily Report of Raw Material and Finished Product On Hand

Silver Lake, N. J. *Nov. 26, 1916*

Material	Quantity on Hand	No. of Days' Supply on Hand	Quantity On Order
Bay Salt	<i>11260#</i>	<i>53</i>	
Aniline Oil	<i>General Storage</i>		
Hydro-Chloric Acid	<i>General Storage</i>		
Phenol			
Common Salt			
Soda Ash			
Bronz	<i>4230#</i>	<i>10</i>	
Ice			
Caustic Soda			

*Mr. Plehan
Mr. Edison wants these
reports (Amidophenol)
made out as per changes
below - Will you kindly
give instructions accordingly
to H. H. Macdonald
H. H. S. / 10*

Total Production of Para-Amidophenol	<i>Nov. 1 to Nov. 26</i>	Incl.	<i>1774#</i>
Average Daily Production	<i>Production This Date</i>	"	<i>0</i>
Average Yield Per Pot Per Day	<i>Average Daily Production For Month</i>	"	<i>68#</i>
Per Cent of Yield		"	

J. G. Plehan

**Special Collections Series -- Chemical Production Records
Organic Chemical Plant Records
Aniline Division (1916)**

These documents relate to the operations of Edison's Aniline Plant at Silver Lake, New Jersey, which began the production of aniline and related organic chemicals during the summer of 1915. The selected items consist of daily production reports from May 1916 signed by plant manager Wilfred S. Dowling. The reports bear marginalia by Edison expressing concern about the drop in the production of aniline oil. Also included is a communication from Peter C. Christensen explaining the reasons for the decline in output.

Less than 5 percent of the documents have been selected. The unselected items include workers' accident reports, financial and accounting documents, non-Edison correspondence, and routine daily production reports.

ANILINE DIVISION
THOMAS A. EDISON

Report of Raw Material and Finished Product On Hand

Silver Lake, N. J.,

May 14th 1916

10171

Material	Quantity On Hand	No. of Days' Supply On Hand	Quantity On Order
Sulfuric Acid	423808 [#]	16	
Benzol	94373	5	
Hydro-Chloric Acid	121370 [#]	93	
Iron Filings	226276 [#]	24	
Lump Lime	4400 [#]	15	
Soda Ash	3110 [#]	16	
Zinc Dust	0	0	
Nitro Benzol	134000 [#]		
Coal	887965 [#]	178	
Oil of Vitriol		60	
Acetic Acid	29100 [#]		
Caustic Soda			

Memo draft -
 What is the cause of
 drop from 5500 down
 to 3799 lbs a day
 //

Chas. J. Dawling

Total Production of Aniline Oil	May 1 st to May 14 th	Incl.	53195 [#]
Average Daily Production	"	"	3799 [#]
Average Yield Per Pot Per Day	"	"	759 [#]
Per Cent of Yield	"	"	66.9%
Total Production of Paraphenylenediamine	"	"	3188 [#]
Average Daily Production	"	"	228 [#]
Average Daily Production Per Working Day	"	"	265 [#]

ANILINE DIVISION
THOMAS A. EDISON

Daily Report of Raw Material and Finished Product On Hand

Silver Lake, N. J., *May 19th 1916.*

Material	Quantity On Hand	No. of Days' Supply On Hand	Quantity On Order
Mixed Acid	404 299 #	18	
Benzol	80 72 g	4	
Hydro-Chloric Acid	115 370 #	88	
Iron Filings	188 236 #	19	
Lump Lime	29 00 #	10	
Soda Ash	38 35 #	19	
Zinc Dust	85 #	17	
Nitro Benzol	14 00 00 #		
Coal	862 465 #	173	
Oil of Vitriol			
Acetic Acid	27 100 #	55	
Caustic Soda			

Why has it fallen from 5500 to this?
OK. W. S. Dowling

Total Production of Aniline Oil	<i>May 1st to May 19th Incl.</i>	79 458 #
Average Daily Production	"	4 182 #
Average Yield Per Pot. Per Day	"	836 #
Per Cent of Yield	"	66.2%
Total Production of Paraphenylenediamine	"	4503 #
Average Daily Production	"	237 #
Average Daily Production Per Working Day	"	264 #

ANILINE DIVISION
THOMAS A. EDISON
Daily Report of Raw Material and Finished Product On Hand

 Silver Lake, N. J., *May 21st* 191*6*

Material	Quantity On Hand	No. of Days' Supply On Hand	Quantity On Order
Mixed Acid	383383 [#]	17	
Benzol	82352 [#]	5	
Hydro-Chloric Acid	114170 [#]	87	
Iron Filings	175736 [#]	17	
Lump Lime	2300 [#]	8	
Soda Ash	3435 [#]	18	
Zinc Dust	75 [#]	15	
Nitro Benzol	156000 [#]		
Coal	852265 [#]	47	
Oil of Vitriol		53	
Acetic Acid	26300 [#]		
Caustic Soda			

Wendell
You haven't told me
why so low output this month
W. S. Dowling

Total Production of Aniline Oil	<i>May 1st</i>	<i>to</i>	<i>May 21st</i>	incl.	84324 [#]
Average Daily Production	"	"	"	"	4015 [#]
Average Yield Per Pot Per Day	"	"	"	"	802 [#]
Per Cent of Yield	"	"	"	"	66.1%
Total Production of Paraphenylenediamine	"	"	"	"	4503 [#]
Average Daily Production	"	"	"	"	214 [#]
Average Daily Production Per Working Day	"	"	"	"	250 [#]

ANILINE DIVISION

THOMAS A. EDISON

Daily Report of Raw Material and Finished Product On Hand

Silver Lake, N. J., MAY 28th 1916

Material	Quantity On Hand	No. of Days' Supply on Hand	Quantity On Order
Mixed Acid	305443 [#]	12	
Benzol	8657 ^q	7	
Hydro-Chloric Acid	148370 [#]	113	
Iron Filings	266811 [#]	31	
Lump Lime	1408 [#]	4	
Soda Ash	2035 [#]	11	
Zinc Dust	45 [#]	8	
Nitro Benzol	153000 [#]		
Coal	816565 [#]	164	
Oil of Vitriol			
Acetic Acid	23500 [#]	46	
Caustic Soda			

*What has been used
The Benzol + Acid
We didn't use
1600 lbs daily less
production*

W. J. L. Loring

Total Production of Aniline Oil	MAY 1 st to MAY 28 th	Incl.	111692 [#]
Average Daily Production "	"	"	3988 [#]
Average Yield Per Pot Per Day	"	"	797 [#]
Per Cent of Yield	"	"	65.3%
Total Production of Paraphenylenediamine	"	"	6487 [#]
Average Daily Production	"	"	231 [#]
Average Daily Production Per Working Day	"	"	270 [#]

**Special Collections Series -- Chemical Production Records
Organic Chemical Plant Records
Carbolic Acid Division (1916)**

These documents relate to the manufacture of "P. [pure] Phenol" at Phenol Plant No. 1, the carbolic acid plant owned by Thomas A. Edison, Inc. Many of the selected items are interoffice communications by H. H. Meno Kammerhoff, manager of the Carbolic Acid Division. Other correspondents include Edison officials Archibald C. Emery, Stephen B. Mambert, William H. Meadowcroft, and Carl H. Wilson. There are also production reports signed by Kammerhoff and bookkeeper Walter E. Burton and initialed by plant superintendent Ralph C. Hendrickson. The subjects covered include operations and labor issues, sales and purchasing, and the relationship between Kammerhoff's plant and "Mr. Edison's plant" (Phenol Plant No. 2). Some of the items are addressed to Edison or bear his marginalia.

Less than 10 percent of the documents have been selected. The unselected items include duplicates, routine daily production reports, financial and accounting documents, inventories, and other material not directly related to Edison.

Headcraft

Carbolic
If he gets the Nitro Cakes we ordering that will give us ⁵⁰⁰⁰ lbs. ^{per day} from the safe March 13th, 1916.

Mr. Headcraft:

Re: INCREASE OF PRODUCTION OF P. PHENOL

In order to avoid any misunderstanding, I give hereafter a list of raw material needed for a production of 7,000 lbs. of P. Phenol per day, and also the surplus of raw material which we would need in case the production should be raised to 9,000 lbs. of P. Phenol per day.

In any event, we could make money if we had to buy some things purring apart for Chem

Material	At 7,000 lbs. per day	Increase for 9,000 lbs. per day, against 7,000 lbs. per day.
Benzol	1,352 Gals.	396 Gals.
Sulphuric Acid, 98%	42,000 Lbs.	12,000 Lbs.
Limestone	24,500 "	7,000 "
Soda Ash	5,250 "	1,500 "
Caustic Soda	14,000 "	4,000 "

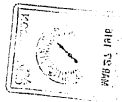
The above list takes into consideration only the material used by ourselves. Since some time we are turning over to the Aniline Plant between 8,000 and 8,000 pounds of 98% Sulphuric Acid per day.

M. HANSEN

If Mason gets his Caustic going soon we will have plenty of Soda - The Soda Ash Mason can now make all we want he is turning away 2 or 3 Tons daily now in liquid form - 2

2648

Chemical



Silver Lake, N. J.,
March 27th, 1916.

Mr. S. B. Lambert:

Requisition Order 20189.

Referring to your Memo 13447, dated March 14th, I beg to hand you the enclosed order for your approval, and add for your information:

We are using ~~at~~ the present time Sulphuric Acid for our Neutralizing Process, but I got the order from Mr. Edison to use Nitric Acid instead, and to put up the necessary apparatus. In regard to the fact that a similar apparatus for the same purpose is in use in Mr. Edison's plant, I am directing this order to the Laboratory, hoping that in this way quick delivery is assured.

H. KALTENHOFF.

Copy to Mr. C. E. Wilson.



Cabot

Silver Lake, N. J.,
April 1st, 1916.

Mr. W. H. Meadowcroft:

DISCOLORATION OF P. PHENOL

We have made a few experiments lately to find out if the sun-light has any effect on the color of P. Phenol, and in what way the light may change the color. I am sending you to-day three sample bottles, and beg to add for your information:

First Sample -- Taken from Batch 29 - Still 1.

Solidifying Point, 40.3 - Distilled Feb. 2, 1916.

This Phenol was distilled once. The sample bottle shows, after exposing it since March 25th to the sun-light, at the exposed side some spots of discoloration.

Second Sample -- Taken from Batch 50 - Still 1.

Solidifying Point, 40.6 - Distilled March 20th, 1916.

This Phenol was distilled twice, and the sample exposed to the sun-light on March 25th. The Phenol in the sample bottle shows discoloration at the exposed side to a remarkably larger extent than in the first mentioned bottle.

Third Sample -- Taken from Batch 60 - Still 1.

Solidifying Point 40.6 - Distilled March 20th, 1916.

This Phenol was, after being distilled twice, redistilled in our laboratory. That means that this Phenol has been distilled three times, and then exposed to the sun-light on March 25th. The exposed side shows discoloration to about the same extent as the second mentioned Phenol.

All three sample bottles prove the fact that the sun-light affects the color of the Phenol, the side of the bottle opposite the exposed side remaining distinctly white. The experiment further seems to indicate that a second and third distillation does not make the Phenol more immune from discoloration. The twice and three times distilled Phenol showing rather more discoloration than that which is distilled only once. Obviously it is not impurities that cause the discoloration, as otherwise the first mentioned sample, which has been distilled only once, should be more discolored than the two other samples.

At any rate, I thought the result of this experiment ^{was} of so much interest, that I should draw your attention to it. I also think that it might interest Mr. Edison.

H. MALKINOFF.

H. M.

Silver Lake, N. J.,
April 5th, 1916.

Catholic

Mr. Handovercroft:

PRODUCTION OF P. PHENOL

Referring to our telephone conversation of this morning, I beg to give you a list of our monthly production since October and a few explanations in regard to the way we were depending on delivery of raw material during the last months, as follows:

Month	No. of Days in Month	Working Days During Month	Production of P. Phenol lbs.	Production per Day of whole month lbs.	Production per work- ing Day lbs.
October	31	31	165,022	5,349	5,349
November	30	27	199,977	6,655.9	7,408.5
December	31	22	170,030	6,484.8	7,723.5
January	31	23	162,729	6,946	7,075.1
February	29	24	160,293	6,677.5	6,578.8
March	31	27	172,132	6,352.6	6,375.2

This list shows that up to and including October we were working week-days and Sundays, the production being, 5349 lbs. per day, or 165,022 lbs. per month. During November we increased our production to a total of 199,977 lbs., working, however, twenty-seven days only, losing four days owing to lack of material. In December the total production ~~was~~ ^{was} 170,030 lbs., the raw material coming in so irregularly that we worked on 22 days only. In January we consumed the raw material coming in in 23 days, producing 162,729 lbs.

In the meantime, I had observed that we did not save money by shutting down occasionally, and that, besides, some of our laborers quit work because they did not like to be sent home on week-days. So I tried from the latter part of January up to now to regulate the consumption of the incoming raw material by working on week-days only, shutting down on Sundays, and using Sunday for repair work. Consequently, the above list shows in February twenty-four, and in March twenty-seven working days. It is, however, obvious that we can easily produce more P. Phenol, owing to the fact that our production per working day in March was 6,375 lbs. only, whilst it was in December 7,729 lbs. How close we kept regularly our consumption to the point where we would have had to shut down owing to lack of material, is made clear by the following figures, taken from our daily reports which we send to the Laboratory:

March 10th we had Benzol on hand for 1½ Days.
" 14th " " " " " 2 " "
" 24th " " " " " 1½ " "
April 1st " " " " " 0 " "

Mr. Meadowcroft:

April 5th, 1916.

The fact that we were at the start of this month short on Benzol explains also the low figure appearing for produced P. Phenol on the daily report these last days. If our stock of Crude Benzol has been distilled it takes always a few days before we have enough on hand to run our distilling plant to its full capacity. Besides, the daily production, appearing in the form of P. Phenol on the report, varies to some extent, because the stills are not emptied every day at the same time. Our production since the beginning of this month has been:

Date	Pounds	Total in five days
April 1st	2430	23,404 lbs.,
" 2nd	1340	
" 3rd	7852	or
" 4th	8852	4,680.8 lbs. per day
" 5th	2730	

We received to-day a new car of Benzol, and we will, provided that no unforeseen accident occurs, certainly be able to go back to our former production of 200,000 lbs. per month, and higher, if it is possible to give us the necessary quantity of raw material.

M. MEADOWCROFT.



Barbois

Silver Lake, N. J.,
April 28th, 1916.

Mr. C. H. Wilson,
Vice Pres. and Genl. Mgr.

WAGES FOR OUR LABORERS.

Referring to our conversation of yesterday, I beg to submit to you the attached list of laborers, handed to me yesterday night by a committee of three men. According to this list, the men demand 27-1/2¢ per hour as an equal rate for everybody.

As an explanation to the spirit under which this list has been signed, I want to add that the spokesman of the committee said he himself had signed not because he was dissatisfied (his present pay is ²⁰~~22-1/2~~¢ per hour), but because his fellow workmen wanted it.

Under the present circumstances, I would suggest that we answer the men that we are willing to let them go back to work by offering them the same rate that is paid in the Phenol Division of Mr. Edison, i.e., 25¢ per hour for laborers in the mill, and 22-1/2¢ for those working in the yard, besides time and a quarter on Sundays and holidays in case there is any work to be done on Sundays.

Please let me know your decision as soon as possible, so that I can communicate with the men further.

M. KAMMERHOFF.
M.K.

Copies to Messrs. T. A. Edison, W. H. Woodcroft, S. B. Lambert, H. Musk, file.

EDISON CARBOLIC DIVISION
of
THOMAS A. EDISON, INC.

Form 1377

W.H.M.

Mr. Thomas A. Edison:

April 28th, 1916.

We submit herewith report of raw material and finished product on hand this date.
Number of days' supply on hand is figured at a production of 7,000 lbs. of pure phenol per day.

MATERIAL	QUANTITY ON HAND	NO. OF DAYS' SUPPLY ON HAND	QUANTITY ON ORDER
Benzol	9,274 Gals.	5½ Days	
Sulphuric Acid	350,719 Lbs.	10 "	100,000 Lbs.
Powdered Limestone	340,760 "	11½ "	100,000 "
Caustic Soda	133,546 "	8 "	56,000 "
Soda Ash	173,439 "	28 "	50,000 "
Coal	2,115,486 "	21 "	400,000 "
Crude Benzol	4,477 Gals.		
Fused Product	17,654 Lbs.		
Sodium Salt	80,705 "		
Crude Phenol	13,522 "		
Phenol (Recovered)	2,520 "		
Chamber Acid	556,655 "	25½ Days	
Fuming Acid	None		

FINISHED PRODUCT

Strike on

On Hand April 27th, 1916	56,281 Lbs.
Delivered to Finished Stock	None
Total to be Accounted for	56,281 Lbs.

SHIPPED April 28th, 1916

To Wax Plant		
American Oil & Supply Co.	3,000 Lbs.	
R. P. Lorier	1,000 "	4,000 Lbs.

ON HAND April 28th, 1916

52,281 Lbs.

Approved: *[Signature]*
Division Manager

[Signature]
Division Bookkeeper

C. C. to General Manager
" " Purchasing Agent

Recd.

CARBOLIC ACID DIVISION.

Carbolic

file

Silver Lake, N. J.,
May 4th, 1916.

Mr. T. A. Edison.

PRODUCTION OF P. PHENOL

I herewith beg to inform you that the total production for the fiscal year from March, 1915, to February, 1916, inclusive, was 1,709,373 pounds of P. Phenol. With the end of the month of April we come well over the two million pounds mark, the grand total from the start in September, 1914, to the end of April, 1916, being 2,143,353 pounds. The development is outlined on the accompanying blue print. The month of November, 1915, appears to be the best month in regard to production, with nearly 200,000 pounds, due to a comparatively high supply of raw material.

H. KALSHORST.

H.K.

Copies to Messrs. C. H. Wilson, S. E. Lambert, H. Mack and file.

CARBOLIC ACID DIVISION.

Carbolic

Silver Lake, N. J.
May 6th, 1916.

Dr. A. C. Emory,
Purchasing Dept.

CARBONIC SODA

Meadowcroft
Look up own Soda
Contracts, & the
amount left
#1 + 2 plants
used last
month

You will undoubtedly have observed that since a couple of days the stock of Caustic Soda for this Division is going down, no new material coming in. In fact our present stock is enough for six days only. About a year ago I asked the Purchasing Department -- with the approval of Mr. Wilson -- that aside of sulphuric acid and benzol, we ought to have enough stock on hand to last us one month. At the present time this is the case with soda ash only, and I take this opportunity of asking you to kindly bring our stock up to the proper quantity if at all possible.

H. KAMMERHOFF.

H.K.

Mr Edison

Copies to Messrs. W. B. Lambert and H. Cook, W. H. Meadowcroft.

Kammerhoff used 295.550 lbs Caustic Soda in April
2 Phenol " 428.600 lbs " " " "
June 724.150
As to contracts, please see list attached to
the memorandum pinned to this paper.

Meadowcroft

CARBOLIC ACID DIVISION.

chemicals

2647



Silver Lake, N. J.
May 11th, 1916.

Mr. A. C. Emory,
Purchasing Dept.

RAW MATERIAL
Your Memo #1469, dated April 29th.

In a conference held at the library in Orange, on Tuesday, May 9th, I was informed by Mr. Mumbert that Mr. Edison had advised him that this Division would be able to produce even more than 7,000 lbs. of P. Phenol per day if raw material in sufficient quantities could be supplied. Consequently, Mr. Mumbert thought it advisable to provide a statement similar to that contained in my letter addressed to you on May 6th, for the purpose of putting you in a position to negotiate for buying material equal to the limit of production which this Division can turn out.

Several months ago I stated to Mr. Edison that we could produce as much as 9,000 lbs. of P. Phenol per day. Therefore, I beg to give you hereafter all the necessary figures for an output of:
(a) 8,000 lbs. of P. Phenol per day, or 240,000 lbs. per month.
(b) 9,000 " " " " " " " " 270,000 " " "

In accordance with my statement of May 6th, the following figures are divided into three groups, i.e.,
First: By using 98% Sulphuric Acid only.
Second: By using partly 98% Sulphuric Acid and partly Chamber Acid.
Third: By using partly 98% Sulphuric Acid and partly Nitric Oxide.

	First: By using 98% Sulphuric Acid only.		
	8000 lbs.	240000 lbs.	9000 lbs.
	per day.	per month	per day
		of 30 days	
-----	1545 gals.	45868 gals. or	1738 gals.
Benzol	or 11200 pounds	356000 pounds	or 12600 lbs.
			52184 gals. or 378000 lbs.
Sulphuric Acid 98%	48000 lbs.	1440000 lbs.	54000 lbs.
Limestone	22000 "	840000 "	31500 "
Soda Ash	6000 "	180000 "	6750 "
Caustic Soda	16000 "	480000 "	18000 "
			1620000 lbs.
			945000 "
			202500 "
			540000 "

Mr. A. C. Emery,
Purchasing Dept.

5-11-16

Second: By using partly 98% Sulphuric Acid and partly Chamber Acid.

	8000 lbs. per day	240000 lbs. per month of 30 days	9000 lbs. per day	270000 lbs. per month of 30 days
Benzol	1545 gals. or 11200 lbs.	46368 gals. or 336000 lbs.	1738 gals. or 12600 lbs.	52164 gals. or 378000 lbs.
Sulphuric Acid 98%	28000 "	840000 "	31500 "	945000 "
Chamber Acid	28000 "	840000 "	31500 "	945000 "
Limestone	20000 "	600000 "	31500 "	945000 "
Soda Ash	6000 "	180000 "	6750 "	202500 "
Caustic Soda	16000 "	480000 "	18000 "	540000 "

Third: By using partly 95% Sulphuric Acid and partly Nitric Oxide.

	8000 lbs. per day	240000 lbs. per month of 30 days	9000 lbs. per day	270000 lbs. per month of 30 days
Benzol	1545 gals. or 11200 lbs.	46368 gals. or 336000 lbs.	1738 gals. or 12600 lbs.	52164 gals. or 378000 lbs.
Sulphuric Acid 95%	29000 "	840000 "	31500 "	945000 "
Nitric Oxide	57000 "	1710000 "	64000 "	1920000 "
Limestone	28000 "	840000 "	31500 "	945000 "
Soda Ash	6000 "	180000 "	6750 "	202500 "
Caustic Soda	16000 "	480000 "	18000 "	540000 "

If any further explanation is wanted I will be glad to furnish it.

H. KAISERLIEFF.

Copies to Messrs. W. H. Woodworth, C. H. Wilson, S. B. Humbert (2).

EDISON CARBOLIC DIVISION
of
THOMAS A. EDISON, INC.

Form 1277

Mr. Thomas A. Edison:

May 20th, 1916.

We submit herewith report of raw material and finished product on hand this date.
Number of days' supply on hand is figured at a production of 7,000 lbs. of pure phenol per day.

MATERIAL	QUANTITY ON HAND	NO. OF DAYS SUPPLY ON HAND	QUANTITY ON ORDER
Benzol	10,389 Gals.	6 $\frac{1}{2}$ Days	
Sulphuric Acid	535,377 Lbs.	9 $\frac{1}{2}$ "	100,000 Lbs.
Powdered Limestone	136,078 "	4 $\frac{1}{2}$ "	100,000 "
Caustic Soda	185,321 "	11 $\frac{1}{2}$ "	56,000 "
Soda Ash	68,625 "	11 "	50,000 "
Coal	1,988,816 "	26 $\frac{1}{2}$ "	400,000 "
Crude Benzol	8,932 Gals.		
Fused Product	25,590 Lbs.		
Sodium Salt	23,116 "		
Crude Phenol	16,908 "		
Phenol (Recovered)	40,203 "		
Chamber Acid	151,100 "	7 Days	
Fuming Acid	None		

*Wadekamp
no longer get averaged daily but put up Phenol off plants as it was*

FINISHED PRODUCT		
On Hand	May 19th, 1916	24,300 Lbs.
Delivered to Finished Stock		8,202 "
Total to be Accounted for		32,502 Lbs.

SHIPPED		
	May 20th, 1916	
To Wax Plant		
American Oil & Supply Co.	8,250 lbs.	8,250 Lbs.

ON HAND	May 20th, 1916	24,252 Lbs.
Approved: <i>W. H. ...</i>	Division Manager	Division Bookkeeper <i>W. H. ...</i>

C. C. to General Manager
" " Purchasing Agent

Rest.

CARBOLIC ACID DIVISION.

Silver Lake, N. J.,
May 22nd, 1916.

Carbolic

Mr. W. H. Meadowcroft,
Edison Lab.

Yes look ok

PHENOL FOR SQUIBB & SONS

I herewith beg to inform you that we have sent to-day the following four sample bottles to Squibb & Sons, each bottle containing a sample from one batch. The whole shipment will consist of 26 cans of 250 lbs. each, or net 6500 lbs. of P. Phenol twice distilled.

Still No.	Batch No.	Can No.	Solidifying Point	Pounds Net.
6	352-53	909 to 914	40.5	6 Cans 1500 lbs.
6	355-56	932 to 937	40.6	6 Cans 1500 lbs.
6	359-60	940 to 946	40.6	7 Cans 1750 lbs.
6	362-63	964 to 970	40.2	7 Cans 1750 lbs.

Total ----- 6500 lbs. net.

*Mr. Edison
We always send
samples first to Squibbs
before shipping the quantity
made for them - They pass
on samples and report. Then
we ship if report is OK.
The above looks good.
Meadowcroft*

M. KAMMERDORF

M.K.

EDISON CARBOLIC DIVISION
of
THOMAS A. EDISON, INC.

Mr. Thomas A. Edison:

May 22nd, 1916

We submit herewith report of raw material and finished product on hand this date.
Number of days' supply on hand is figured at a production of 7,000 lbs. of pure phenol per day.

MATERIAL	QUANTITY ON HAND	NO. OF DAYS SUPPLY ON HAND	QUANTITY ON ORDER
Benzol	9,199 Gals.	5½ Days	
Sulphuric Acid	312,377 Lbs.	9 "	100,000 Lbs.
Powdered Limestone	116,078 "	4 "	100,000 "
Caustic Soda	171,521 "	10½ "	56,000 "
Soda Ash	63,500 "	10 "	50,000 "
Coal	1,744,696 "	23 "	400,000 "
Crude Benzol	8,932 Gals.		
Fused Product	19,798 Lbs.		
Sodium Salt	42,816 "		
Crude Phenol	13,744 "		
Phenol (Recovered)	40,203 "		
Chamber Acid	123,100 "	6 Days	
Fuming Acid	None		

FINISHED PRODUCT

On Hand May 21st, 1916

33,802 Lbs.

Delivered to Finished Stock

None

Total to be Accounted for

33,802 Lbs.

SHIPPED May 22nd, 1916

None

To Wax Plant

ON HAND May 22nd, 1916

33,802 Lbs.

Approved: *[Signature]*

Division Manager

Division Bookkeeper

C. C. to General Manager
" " Purchasing Agent

Total production for month, to date 128,653 lbs
Average daily production for month 6126 lbs

*700 Edison
The figures
below were taken
daily from
measuring tank*

Robt

~~33,802 Lbs.~~

EDISON CARBOLIC DIVISION

DATE OF ORDER
JUN 2 1916
S. R. HOFFERof
THOMAS A. EDISON, INC.

Mr. Thomas A. Edison: May 26th, 1916
 We submit herewith report of raw material and finished product on hand this date.
 Number of days' supply on hand is figured at a production of 7,000 lbs. of pure phenol per day.

MATERIAL	QUANTITY ON HAND	NO. OF DAYS' SUPPLY ON HAND	QUANTITY ON ORDER
Benzol	5,527 Gals.	5½ Days	
Sulphuric Acid	355,049 Lbs.	6½ "	100,000 Lbs.
Powdered Limestone	107,278 "	5½ "	100,000 "
Caustic Soda	166,415 "	10 "	56,000 "
Soda Ash	84,080 "	13½ "	50,000 "
Coal	1,910,016 "	25½ "	400,000 "
Crude Benzol	4,455 Gals.		
Fused Product	27,625 Lbs.		
Sodium Salt	26,049 "		
Crude Phenol	17,990 "		
Phenol (Recovered)	40,203 "		
Chamber Acid	None		
Fuming Acid	None		

FINISHED PRODUCT

On Hand ^{As} May 26th, 1916	51,714 Lbs.
Delivered to Finished Stock	10,455 "
Total production this month to date	161,530 Lbs.
Average daily production this month to be accounted for	62,169 Lbs.

SHIPPED May 26th, 1916

To Wax Plant	1,250 Lbs.	
American Oil & Supply Co.	2,000 "	- to adjust our daily shipments
T.A.E. Phenol Division	950 "	at 21 plant. 4,200 Lbs.
General Electric Co.		

ON HAND May 26th, 1916

57,969 Lbs.

Approved: *T. A. Edison*

Division Manager

Division Bookkeeper

C. C. to General Manager

" " Purchasing Agent

REV.

EDISON CARBOLIC DIVISION
of
THOMAS A. EDISON, INC.

Mr. Thomas A. Edison: June 3rd, 1916
We submit herewith report of raw material and finished product on hand this date.
Number of days' supply on hand is figured at a production of 7,000 lbs. of pure phenol per day.

MATERIAL	QUANTITY ON HAND	NO. OF DAYS' SUPPLY ON HAND	QUANTITY ON ORDER
Benzol 1 Car and	7,537 Gals.	10 1/2 Days	
Sulphuric Acid	370,996 Lbs.	6 1/2 "	100,000 Lbs.
Powdered Limestone	32,500 "	1 "	100,000 "
Caustic Soda	104,740 "	6 1/2 "	56,000 "
Soda Ash	63,943 "	10 "	50,000 "
Coal	2,222,196 "	29 1/2 "	400,000 "
Crude Benzol	4,455 Gals.		
Fused Product	25,216 Lbs.		
Sodium Salt	26,075 "		
Crude Phenol	17,347 "		
Phenol (Recovered)	40,203 "		
Chamber Acid	None		
Fuming Acid	None		
Fuel Oil	1,073 Gals.	3 1/2 Days	

*Medlock
Why don't Kaminski
Stock up on Limestone
Mallory has lots of it*

FINISHED PRODUCT

On Hand	June 2nd, 1916		63,158 Lbs.
Delivered to Finished Stock			9,136 "
Total Production this Month to Date		27,365 Lbs.	
Average Daily Production this Month		9,121 "	
Total to be Accounted for			92,294 Lbs.

SHIPPED June 3rd, 1916

To Wax Plant		1,000 Lbs.	1,000 Lbs.
American Oil & Supply Co.			
In Stock for Spot Sales	81	250 lb. Cans	20250 lbs. Phenol net
to " " " "	6	250 " "	1500 " " "
Total	87	250 " "	21750 " " "

ON HAND June 3rd, 1916

Approved: *H. Kaminski*
Division Manager

81,294 Lbs.
M. Weston
Division Bookkeeper

C. C. to General Manager
" " Purchasing Agent

CARBOLIC ACID DIVISION.

Carbolic
Silver Lake, N. J.,
June 8th, 1916.

Mr. T. A. Edison.

Subject: REMOVAL OF BENZOL STILL

According to your instructions received yesterday over the 'phone, our benzol still has to be removed to some other place, in order to have the muffle furnace for iron sulphate put in operation. The best place I can find for the benzol still seems to be near our store-house, as indicated on the attached blue print. The benzol still would be far enough away -- about eighty feet -- from the railroad track, as to exclude danger from sparks coming from the locomotives.

I have given Mr. Herter a sketch showing the main measurements of the benzol still, and understand that he is designing a building to be put up by the carpenters from the Laboratory, after you approve of the design and the location.

The removal and new installation of the benzol still is a comparatively small matter. I feel it my duty, however, to call your attention to the fact that the muffle furnace is located dangerously near our sulphoning pots, the distance being 34-1/2 feet only on a straight line. You will remember that in December 1914 we experienced an explosion which, as far as I can judge, was due to benzol vapors coming in contact with the open gas flames which at that time were used for heating our salt drying tanks. The distance between the tanks and the sulphoning pots was 63 feet, or about twice the distance between the sulphoning pots and the muffle furnace. Under normal conditions, i.e., as long as the weather is clear and dry, all windows in the building being open, I am not afraid of having an open fire as near as 30 or 40 feet from the sulphoning pots. In damp weather, however, the situation is quite a different one, the benzol vapors having a tendency to stay near the floor, spreading along to all sides, and carrying a fire, the moment they get ignited somewhat back to the sulphoning pots, and causing an explosion.

It may be that I am going too far in regard to safety, but I think it better to explain the situation fully before you decide on this matter, and am giving as a further explanation hereto a sketch outlining the present situation.

M. KAMMERHOFF. *M. K.*

2648
[Handwritten signature]

PAE, Inc. - Plant & Equipment

CARBOLIC ACID DIVISION.

RECEIVED
JUN 10 1916

Silver Lake, N. J.
June 9th, 1916.

Mr. C. H. Wilson, Genl. Mgr.

I beg to inform you that this morning, about 5:30, we had a little fire in our Phenol distilling plant, the cause of which is not quite clear to me yet. I am sure that no benzol or benzol vapors could have been ignited, as benzol is not handled in the distilling department at all, but there is just a possibility that a short circuit between wires may have occurred.

The damage done by the fire, fortunately, is limited to some wooden posts and windows. Our men got the fire quickly under control, so that it did not spread to other parts of the buildings.

There will be no interruption generally of our plant. We are going right ahead to manufacture Crude Phenol and store it for a couple of days, in which time I expect to have the distilling plant running again.

M. KAMMERHOFF
[Handwritten signature]

Copies to Messrs. T. A. Edison, Chas. Edison, Mambert, Meadowcroft, file.

[Large handwritten checkmark]

CARBOLIC ACID DIVISION.

*Carbolic*Silver Lake, N. J.,
June 15th, 1916.Mr. A. C. Emery,
Purchasing Dept.SHIPMENT OF P. PHENOL IN BOTTLES.

Having been informed by Mr. Meadowcroft that Mr. Edison wants us to prepare immediately for certain changes in our method of shipping Phenol, I am sending you attached hereto five orders for small quantities of packing material. The orders are stamped "Emergency", and I have to ask you to kindly arrange that this material be sent to Silver Lake without delay, as we depend on it to start shipments in bottles. We very probably will need this material in larger quantities in the near future, but inasmuch as I do not know at the present time what quantities of Phenol will be shipped in bottles, I must restrict the enclosed orders to rather small quantities.

OUR REQUISITIONS 20405, 406, 407, 418, 419,
dated June 7th and 9th respectively.

I was instructed by Mr. Meadowcroft the 7th of this month to arrange filling of Phenol into bottles beforehand as quick as possible, and therefore ordered the above mentioned requisitions after finding out in what shortest time the material could be delivered. The name of firm and time of delivery given us on the 'phone was mentioned in our requisition.

We were promised material on order #20405 within three days.
 " " " " " " " 20406 from stock.
 " " " " " " " 20407 " " "
 " " " " " " " 20418 within two days.
 " " " " " " " 20419 " " " "

We have so far received #20407 only, and no weights were included. I would appreciate it if you would let me know after receipt of this Memo when we may expect delivery. Mr. Meadowcroft asks me to make it clear to you that Mr. Edison is specially interested that the new arrangement of shipping Phenol in bottles be made ready without any delay.

M. KALLENBERG.

Copies to Mr. Meadowcroft.

Carbolic

June 15th. 1916.

Mr. H. Kemmerhoff, Manager,
Carbolic Division,
Silver Lake, N. J.

Dear Sir:

At Mr. Edison's express request I write
this letter authorizing you to allow Col. Bryant,
Mr. Leach and Dr. Szamotelski to go through the
Carbolic Plant. Col. Bryant is the Commissioner of
Labor of the State of New Jersey, and the other
gentlemen are also connected with that Bureau.

Yours very truly,

Assistant to Mr. Edison.



2648

CARBOLIC ACID DIVISION.

chemicals

Silver Lake, N. J.,
June 16th, 1916.

Mr. Thomas A. Edison, Pres.,
Thomas A. Edison, Inc.,
Orange, New Jersey.

Subject: REPORT ON MANUFACTURING OF P. PHENOL IN APRIL.

In 21 working days -- four days lost by labor trouble -- we produced 173,739 lbs. of P. Phenol, or about the same quantity as in March. The total cost per pound of P. Phenol was 46.7¢, of which 15.68¢ are due to higher prices of raw material. The price, furthermore, was influenced 3.13¢ for an increase in depreciation.

At the prices prevailing last spring for raw material, and at the previous rate of depreciation, the cost per pound of P. Phenol would be 30¢. There remains, then, a higher cost of 3¢, compared with our standard figure, mainly due to double distilling of Crude Phenol, slightly higher expenses for labor, higher consumption of water and considerably higher prices for Fuel Oil. More water is used at the present time because the warmer weather is influencing the consumption, and besides we are using more water for distilling our Phenol twice.

Respectfully yours,

M. KAMMERDORFF.

Copies to Messrs. Wilson, Members (2) Nickerson, file.

EDISON CARBOLIC DIVISION

of
THOMAS A. EDISON, INC.

Mr. Thomas A. Edison: We submit herewith report of raw material and finished product on hand this date. June 21st, 1916
Number of days' supply on hand is figured at a production of 7,000 lbs. of pure phenol per day.

MATERIAL	QUANTITY ON HAND	NO. OF DAYS' SUPPLY ON HAND	QUANTITY ON ORDER
Benzol	16,297 Gals.	10 Days	
Sulphuric Acid	162,772 Lbs.	3 "	100,000 Lbs.
Powdered Limestone	445,500 "	15 "	100,000 "
Caustic Soda	2,868 "	— ★	56,000 "
Soda Ash	18,243 "	3 "	50,000 "
Coal	1,677,478 "	22 "	400,000 "
Crude Benzol	None		
Fused Product	33,194 "		
Sodium Salt	28,865 "		
Crude Phenol	25,329 "		
Phenol (Recovered)	40,203 "		
Nitric Cake	1,341,110 "	22 Days	
Chamber Acid	None		
Fuming Acid	None		
Fuel Oil	2,661 Gals.	9 Days	

FINISHED PRODUCT

On Hand	June 21st, 1916	104,387 Lbs.
Delivered to Finished Stock		6,633 "
Total Production this Month to Date	121,625 lbs.	
Average Daily Production this Month	5,791 "	
Total to be Accounted for		152,920 "

SHIPPED June 21st, 1916
American Oil & Supply Co.
J. E. Watkins & Co.
To Wax Plant 250 1-lb bottles 700 lbs. 950 lbs.

Added	In Stock for Spot Sales	235	250-lb. cans	58,750 lbs.	Phenol net
	to " " " "	6	" " "	1,500 "	" " "
Total	in " " " "	241	" " "	60,250 "	" " "

ON HAND June 21st, 1916 151,970 lbs.
Approved: *H. R. ...* Division Manager
Division Bookkeeper *W. ...*

C. C. to General Manager
" " Purchasing Agent

2648

SULFURIC ACID DIVISION.

Silver Lake, N. J.,
June 29th, 1916.

Edison Chemical Works,

Subject: CONSUMPTION OF STEAM

As far back as January 31st of this year we have brought the matter of measuring steam consumed by your Nickel Hydrate Briers to your attention. We have mentioned the unfavorable conditions again in our letter of March 16th. Furthermore, the question has been brought up different times during conferences held in the Library in Orange. So far you have not arranged for a steam meter during these five months.

We certainly do not like to bring things of minor importance to Mr. Edison's attention. Inasmuch, however, as our expenses for steam are growing, whilst we are unable to control the situation, we will be compelled to ask Mr. Edison to settle this question if you keep on consuming steam from our boilers without providing a meter to measure it in the proper way. We have pointed out to you that it will be necessary to charge you with the increased amount of steam not accounted for during the time that your consumption is not measured, and we are going to do this starting with the beginning of this month.

H. KAUFMANN.

Copy to Messrs. Wilson, Lambert (2) Lusk and file.



21548

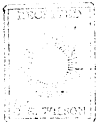
CARBOLIC ACID DIVISION.

Silver Lake, N. J.,
July 3rd, 1916.

Phenol Division of T. A. Edison,
Attention of Mr. Dowling, Div. Mgr.

Chemicals

Subject: SODIUM CARBONATE IN LIQUID FORM.



You will have heard from Mr. Mason that a pipe line and pumping arrangement between your plant and our Division has been installed to pump over to us Sodium Carbonate in liquid form, which will be used as a substitute for the Soda Ash, which we used previously. In order to simplify the billing of the Sodium Carbonate solution, we are putting down the gallons pumped over by you into our tanks from time to time, in the same book in which we keep record of the steam meter. The figure in gallons received from you is acknowledged in the record book by one of your officials, so that at the end of the month there will be no doubt as to how many gallons we have to pay for.

Following Mr. Edison's orders, the expenses for the investment of pump and pipe line from your side up to the end of the connecting of the pipe tunnel are to be paid by you, whilst we pay for the investment of the storage tanks and pipe line located in our Division. Mr. Edison, furthermore, settled the price to be paid per gallon of the Sodium Carbonate solution at 0.46¢, the solution to contain as an average 15% of Sodium Carbonate.

We presume that our daily consumption will be in the neighborhood of 3,000 gallons, which would mean an expense of \$13.80 every 24 hours. The arrangement is in operation since the 26th of last month, and is working so far very satisfactory, and we hope that ~~you~~ will be able to keep the variation in the specific gravity within the limit so far experienced.

Please let us have as soon as possible your bill covering the consumption for last month from June 23rd to June 30th inclusive, showing a total of 10,568 gallons.

M. KALSHOFER
M.K.

Copies to Messrs. T. A. Edison, C. H. Wilson, S. B. Lambert (2) Bank, Kellow.

**Special Collections Series -- Chemical Production Records
Organic Chemical Plant Records
Coal Tar Products Division (1917)**

These documents relate to the operations of the Coal Tar Products Division of Thomas A. Edison, Inc., and its predecessor, the Aniline Division. Many of the selected items are interoffice communications by H. H. Meno Kammerhoff, who took over the management of the Aniline Division after it became part of TAE Inc. Some of the items are addressed to Charles Edison, who oversaw the reorganization of the chemical plants as departments within the Coal Tar Division. Other correspondents include Archibald C. Emery, manager of New Jersey Products, Inc., which was established in May 1917 to handle the sale of Edison's chemical products. Included are documents pertaining to the shutting down of the two phenol plants and the suspension of production at the Amidophenol Plant, due to increasing stockpiles and declining prices. There are also some daily production reports of the Paraphenylenediamine Dept., bearing marginalia by Edison, along with other items attesting to a dramatic increase in the production of that chemical during the second half of the year.

Approximately 50 percent of the documents have been selected. The unselected items include business correspondence on matters not directly related to Edison.

ANILINE DIVISION

SILVER LAKE, NEW JERSEY

XXXXXXXXXXXXXXXXXXXX

June 20th, 1917

New Jersey Products, Inc.,
165 Broadway, New York City.

Gentlemen:

Subject: MANUFACTURE OF BENZIDINE
Your Letter of June 8th.

F. J. B.
FILE

~~Aug 9~~
~~Aug 1st~~
~~Sept 2nd~~

*Benzidine
a dead issue
at this time.
Not worth further
necessary money
is to develop
according to Mr. Emery*

10/2/17

Confirming our conversation of yesterday, I beg to inform you that the Benzidine plant is not, and never has been ready for starting the manufacture of Benzidine. Since I deem it imperative to see that as quickly as possible the manufacture of Phenol, Para Phenylendiamine and Amido Phenylhydrochloride be put on a regular manufacturing basis, I would advise postponing the question of manufacturing Benzidine for a short while. I would like, of course, to take this matter up immediately, but that would mean that under the present circumstances the manufacture of Phenol, Para Phenylendiamine and Amido Phenylhydrochloride would have to suffer to a certain extent.

Yours very truly,

Aniline Division of
THOMAS A. EDISON, Incorporated.

H. J.
Manager.

C. C. to Messrs. Cane, Edison, E. B. Mumbert (2), and H. Hank.

ANILINE DIVISION

SILVER LAKE NEW JERSEY

June 20, 1917.

New Jersey Products, Inc.,
165 Broadway, New York City.

Subject: PARA NITRO ACETANILID FOR A. ELIESTEIN
Your Letter of June 8

Gentlemen:

Referring to our conversation of yesterday, I beg to confirm the decision we agreed on, that we will start on July 1st to manufacture about 200 pounds of Para Nitro Acetanilid per day, supplying in that way the 5,765 lbs during the month of July. As this means taking part of our products away from the material needed for Para Phenylendiamine, it is understood that until July 31st the daily production of the latter material will not be increased above the present figure of 400 pounds per day. This, of course, does not mean that I will not try to increase the production of Para Phenylendiamine before the end of July, but it rather shall serve to make the situation clear to you that the supply of 5,675 pounds of Para Nitro Acetanilid naturally delays somewhat the increase of Para Phenylendiamine to the desired 1,000 pounds daily.

Yours very truly,

ANILINE DIVISION of
THOMAS A. EDISON, Incorporated

Manager

Silver Lake, N. J.
July 18, 1917.

C.C.

Mr. Chas. Edison ✓

Mr. S. B. Lambert (2)

FILE

SUBJECT:

Production of Para

Referring to our telephone conversation of yesterday, it seems to me that there is some misunderstanding as to the present state of production of Para, and I would, therefore, beg to submit to you what follows:

At the beginning of last month the New Jersey Products Company wanted me, just as soon as possible, to deliver, besides Para, the balance of the old order of Nitro Acetanilid, this balance being 5,765 lbs.

The Nitro Acetanilid being a product which is, in later operations, being used for the manufacture of Para, it naturally follows that the delivery of Nitro Acetanilid will cut down, to a certain extent, the manufacture of Para. I made this absolutely clear in a letter to the New Jersey Products Company, dated June 20th, a copy of which I attach hereto. I promised, according to that letter, to supply the 5,765 lbs. of Nitro Acetanilid during the month of July, explaining that consequently the manufacture of Para would not be raised above 400 lbs. per day before the end of July.

Our daily report of July 17th shows a total production, so far this month, of 5,459 lbs. of Para or an average daily production, per month day, of 321 lbs. Figured per working day, (in thirteen days), this means 419 lbs of Para per day. But, aside and apart from this, we have delivered 5,420 lbs of Nitro Acetanilid to Klipstein. This corresponds with about 2,600 lbs of Para so that in case we did not have to supply Klipstein with Nitro Acetanilid our production of Para would have been 8,000 lbs. up to the 17th of July, which per working day would have meant more than 600 lbs., and per month day about 470 lbs.

I have been very careful from the start, i. e. from June 1st, not to promise anything which I did not feel I could do, provided, of course, that no unforeseen accident happened. In spite of the deplorable accident in our Still room we have produced, during June, 10,795 lbs. of Para, which, with twenty-two working days, means about 500 lbs. per day.

In my letter to the New Jersey Products Company, dated June 28th, a copy of which I sent to you, I explained that I had to ask for a little more patience regarding the output, and I again, yesterday, told you over the phone that we have every reason to be extremely careful so as not to arouse the Department of Labor by any more accidents.

The necessary steps to increase the production have been taken and I feel sure that my program, shown in my letter of June 28th, can be carried through and that at the end of August a production of about 1,000 lbs. per working day will be reached. It must, however, be taken into consideration that the New Jersey Products Company again has placed an order for another 10,000 lbs. of Nitro Acetanilid, equal to about 4,800 lbs of Para, to be delivered during August. It is self evident that in counting the production of the Plant per day not only the Para but also the Nitro Acetanilid must be taken into account.

SUBJECT:

Production of Para.

This Plant, at present and probably for some time to come, depends entirely upon Para from the financial point of view, and it certainly is imperative that we should increase our production with all possible speed. We would, on the other hand, not serve our interests, but make it far worse than it is at present if we, by pushing blindly ahead, met with more accidents of some kind, push our laborers more than at present and bring the Plant to an absolute standstill.

I understand that for more than six months prior to June 1st, an increase of the production to about 1,000 lbs. per working day was wanted. I do not think that I should be expected to change the whole Plant from the present condition, absolutely unsatisfactory in every respect, in a couple of weeks in such a way that, under safe conditions, the output be increased 250 %.

I understand, very well, that Mr. Emery, seeing that his calculations in regard to selling of Phenol being, so far, a complete failure, would like to throw everything on the Para, but since no one can be more anxious than I, myself, to increase the production, as fast as possible, I would respectfully ask you to wait until about the end of next month, at which time I hope to be in a position to show results.

M. KAMMERHOFF.



See Entry

PARAPHENYLENEDIAMINE

FILE

Silver Lake, N. J.
July 20, 1917.

*Charles -
I understand refs are
not short of
acetic*

Mr. Emery, Purchasing Department.

SUBJECT: Glacial Acetic Acid.

In my letter of July 17th I informed you that we had run out of Glacial Acetic Acid.

On the 17th of July, at night, you managed to send us, by truck, 700 lbs. of Glacial Acetic Acid, but since that time the supply has ceased entirely.

As stated in my letter of the 17th, Mr. Dykeman informed me that a car of Glacial Acetic Acid unfortunately had been blocked up. I understand that this is somewhere near Jersey City. I understand, further, that the Purchasing as well as the Traffic Department have been busy since almost the 16th of this month to get this car to our Division, so far, however, without success.

We were just on the way to get a slight storage of half finished products assembled, necessary to keep us going in case some interruption in one or another of the operations occurred. I am sorry to state that up to this moment we are short 4,000 lbs. of Glacial Acetic Acid, which we would have consumed, constituting a loss of production, in Para, of 1,600 lbs. so far.

Although you, no doubt, are ~~wishing~~ ^{would like} to get the blocked car of Glacial Acetic Acid to our factory, I thought it better to make the present situation quite clear to you, and am sending this letter by special messenger.

As stated in my letter of July 19th, we can consume from now until August 1st, 1,500 lbs. of Glacial Acetic Acid per day, and should have after August 1st, if possible, 2,500 lbs. of Glacial Acetic Acid per day so as to be on the safe side with this material.

Any information your Department can give us, by telephone, in regard to the movements of the car in question, will be valuable since we have to arrange, in due time, to get our laborers to the factory for the night in case we can start up the stills again.

M. KAMMERHOFF



O. C. Mr. T. A. Edison, Mr. Charles Edison.

2611
apmccab
Our Ref. #32.

October 2, 1917.

Mr. Charles Edison:

Dear Sir:

SUBJECT:- Production of Paramidophenol Hydrochloride.

A quantity of 18,000 pounds of Amidophenol Hydrochloride is to be produced during the remainder of the year, as per order #120 from the New Jersey Products, Inc., dated Sept. 10th, the order bearing your signature.

Our stock on hand was according to the attached statement 8,179 pounds at the end of September, whilst our unfilled orders amount to 170 pounds.

Under these circumstances the New Jersey Products, Inc., does not deem it advisable to proceed with the manufacture of Amidophenol and advises in their letter Oct. 1st to discontinue operations for the month of October. A copy of said letter has been sent you. I would ask you, to kindly let me know what your decision is in this matter.

SUBJECT:- Production of Paraphenylenediamine.

During September, October, November and December, we have to produce 25,000 pounds of Para per month, as per Order #100 from the New Jersey Products, Inc., dated August 20th. The attached statement shows a stock of Para on hand at the end of September of 13185 pounds against an amount of 3,900 pounds of unfilled orders.

The Para is being stored in air tight, sealed cans, and does not according to experience, get spoiled by prolonged storing. I understand that the production of Para is to be continued in a normal way, but think it better to bring this question up at the same time, when the production of Amidophenol is to be discussed.

Respectfully yours,

ME-JAM

CC to Messrs. T.A. Edison; S.B. Lambert; (2)
C.H. Wilson; F. Erwin;



THOMAS A. EDISON, INC.
COAL TAR PRODUCTS DIV.

151.

PARA DEPARTMENT

SILVER LAKE, N.J. Oct. 16, 1917.

Purchasing Department:

Attention:- Mr. A. C. Emory.

SUBJECT:- SULPHURIC ACID 98% FOR PARA.

Referring to our telephone conversation of this morning, please be informed that the data on our daily reports of October 16th and 17th relative to Sulphuric Acid 98% are stating correctly the number of days for which we are covered at present. On October 16th we have besides the amount of 425,359 pounds, an additional three cars, which we estimated 100,000 pounds each; consequently the report said we are covered for 48 days.

On October 17th we added the contents of the three cars to the present stock and said that with 717,553 pounds we were covered for 47 days. You were not quite sure if you had the figures on hand showing the consumption of raw material for Para for the production of 1,000 pounds per day. Please look up your files and you will find attached to our letter of Sept. 13th a list for raw material, stating that 15,000 pounds of Sulphuric Acid 98% are consumed for a production of 1,000 pounds of Para.

Again attached to our letter of Sept. 23th, we handed you another list showing our storing facilities, in which you will find the same statement, i.e. consumption of 15,000 pounds of Sulphuric acid 98% for the production of 1,000 pounds of Para.

I do not quite understand your remark or question as to renewed consumption of raw material for the manufacture of Phenol in 1918, but repeat here what I said to you over the phone that, with the decision about production of Phenol pending, I am not in a position to state anything whatever regarding raw material that might be necessary for the manufacturing of Phenol. In fact I have been under the impression that during the conference in which it was decided to shut the Phenol Plant down you got the authority from Mr. Charles Edison to dispose of the remaining raw material. Consequently I do not know why we should take into consideration new contracts for raw material under the present circumstances covering the production of Phenol.

COAL TAR PRODUCTS DIVISION,
THOMAS A. EDISON, INC.

Para Department

M. KAMENHOFF.

CO TO MESSRS. CHAS. EDISON & S. MAMBERT (2)

COAL TAR PRODUCTS DIVISION

✓

*Can carry down tank
by oxygen from
and getting in Courtain*
Silver Lake, N.J., Oct. 26, 1917.

Mr. Charles Edison:

Regarding the general state of affairs in the Coal Tar Products Division, I beg to inform you as follows:

Carbolic Acid Department.

The plant has been shut down since October 1st. Most of the remaining stock of raw material has been disposed of, there being on hand as per report of October 26th, 20,426 gallons of benzol; 3,000 lbs. of Vitriol, 1,164,044 lbs. of limestone, 131,625 lbs. of caustic soda and 78,000 lbs. of soda ash. Besides there are 22,888 lbs. of P. Phenol, the sale of which is covered by contract.

*All Caustic soda -
Horming on benzol -
soda ash needed for Para use -* Phenol Department.

The plant is idle since practically the first of July. There is on hand in raw material as per report of October 26th, 27,000 lbs. of caustic soda, 33,428 lbs. of magnesium oxide, 407,400 lbs. of sodium chloride, 654,234 lbs. of oleum, 47000 gallons of benzol in tanks and drums and five cars of benzol. Besides there are 17,470 lbs. of P. Phenol, the sale of which is secured by contract.

Cond. J. P. B. 10/26/17

*Caustic soda
Horming on other materials -* 166 Amidophenol Department.

The plant is idle since the first week of October. There is enough raw material on hand to enable us to start production up again immediately. There is unfortunately a large stock of Amidophenylhydrochloride-9724-lbs. on hand, also 1,026 lbs. of Amidophenolbase. Shipments of this product have ceased almost completely. I understand that it is impossible at present to close any sales of importance. You will remember that I pointed out repeatedly the danger of the Amidophenylhydrochloride becoming discolored, which will make it again necessary to refine it sometime. May I ask again to instruct the selling department to dispose of this product even at a lower selling price if at all possible?

*Our list
to available
for sale
is not thru
we hold on*

we should sell at lower price - local market
166 Paraphenylenediamine Department.

Our production is being on the increase steadily. Up to the 25th of this month we manufactured 1,840 lbs. more than during the same period in September, besides some larger production and shipments of Nitroacetanilid. Our stock of Para on hand as per report of October 26th is 24,185 lbs. I understand that the decrease of shipments in October is due to normally changing conditions in this season and that we can look with confidence ahead, regarding this product.

We will sell our full production for year - 166
Production of other chemicals.

As I informed you briefly these days by telephone, I had a conference with Mr. Grosvenor in New York and gave him such explanations of our apparatus and machinery, etc. as he needed to complete his layout. What I hear from him leads me to believe that he shortly will be in a position to submit concrete data for your decision.

I am most anxious that you may see a way to turn over to me some new work so that I can better distribute the overhead expenses, which so far I have cut down as much as I think it at present wise and advisable.

A. H. ...

2211-23072

DAILY REPORT PARAPHENYLENEDIAMINE DEPARTMENT

COAL TAR PRODUCTS DIVISION
THOMAS A. EDISON, INC.

Shop Order 3009

MR. THOMAS A. EDISON:

Date Nov 3, 1917

We submit herewith our report of raw material and finished product on hand this date.
Number of day's supply is figured at a production of 1000 lbs. Paraphenylenediamine per day.

MATERIAL	QUANTITY ON HAND Pounds	NUMBER OF DAYS SUPPLY ON HAND	REMARKS
Aniline Oil	10446	5	
Acetic Acid (Glacial)	48320	16	
Sulphuric Acid 98%	233343	15	
Mixed Acid	123273	30	
Iron Filings	163206	54	
Sodium Carbonate	29261	73	
Acetic Acid Recovered			
Caustic Soda	55750	69	
Acetanilid			
Para Acetyl, dry			

Count this -
Charles A. G.
Don't lock up

FINISHED PRODUCT.

ON HAND	ACETATE OF SODA	Pounds	PARAPHENYLENEDIAMINE	Pounds
Delivered to Finished Stock		27425		
Total to be Accounted for		820		
		28245		
Total Production this Month			2320	
Average Daily Production this Month			773	
Shipped:		20		

In Stock for Spot Sales

28225

Added to Stock for Spot Sales

Total in " " " "

ON HAND

ACETATE OF SODA

PARAPHENYLENEDIAMINE 28225

Approved:


 Division Manager

Division Bookkeeper.



COAL TAR PRODUCTS DIVISION
Thomas A. Edison, Incorporated.

Silver Lake, N.J., Nov. 9, 1917.

Mr. Charles Edison:

SUBJECT: Production of Paraphenylenediamine.

For your information I beg to bring to your attention the development of Para production since June 1st as shown in the list below. Nitroacetanilid, or as we use to call it "mud", is figured as being equal to 2.75 lbs. of Para.

Month	Produced		Mud is equal to Para	Total produced Para plus Mud. Mud figures as Para	Month days	Working days	Total production per month working day	
	Para	Mud					day	day
JUNE	10760	3803	1365	12143	30	24	405	506
JULY	12690	3466	1260	13950	31	25	447	554
AUGUST	17506	3178	1155	18661	31	28	602	666
SEPTEMBER	16116	5316	1938	20049	30	26	668	771
OCTOBER	21020.5	9998	3635	24655.5	31	28	795	880
TOTAL	79992.5	25763	9366	89358.5	153	131	584	682

A comparison between the last five months and the preceding five months shows these figures:

Total production of Para including mud from January to May 1917, inclusive: 44178 lbs. or 292 lbs. per month day.

Total production of Para including mud from June to October 1917, inclusive: 89358.5 lbs. or 584 lbs. per month day.

The output, therefore, has so far been doubled.

THOMAS A. EDISON, INC.

COAL TAR PRODUCTS DIVISION

H. Kammhoff
Manager

CC to Messrs T.A. Edison, C.H. Wilson,
S. B. Mambert and A. C. Emery.

MK:PTP

COAL TAR PRODUCTS DIVISION
Thomas A. Edison, Incorporated.

Silver Lake, N.J., Nov. 9, 1917.

Mr. Charles Edison:

SUBJECT, Production of Amidophenolhydrochloride.

The manufacture of Amido has been discontinued according to your instructions. For your information I beg to give below a few figures showing how we were proceeding with the production of this material as far as output is concerned;

MONTH 1917	PRODUCED AMIDO lbs.	MONTH DAYS	WORKING DAYS	PRODUCTION	
				PER MONTH DAY LBS.	PER WORKING DAY LBS.
JUNE	184	30	26	6	7
JULY	2808	31	25	90	112
AUGUST	3760	31	27	122	140
SEPTEMBER	5522	30	24	184	230
<u>OCTOBER</u>	<u>2661.5</u>	<u>31</u>	<u>12</u>	<u>86</u>	<u>222</u>
TOTAL	14955.5	153	114	98	131

A comparison between the preceding five months from January to May inclusive with the five last months from June to October inclusive shows these figures:

Total production of Amidophenol
from January to May 31st.....

5902 lbs. or 39 lbs. per month day

Total production of Amidophenol
from June to October 31st.....

14955.5 lbs. or 98 lbs. per month day.

This record means that with the present facilities we are able to produce at least 230 lbs. of Amidophenol per working day and that the output during the last five months has so far, compared with the five months previous, been increased 150 per cent.

THOMAS A. EDISON, INC.
COAL TAR PRODUCTS DIVISION


Manager

CC to Messrs T.A. Edison, C.H. Wilson,
S.B. Lambert and A.C. Emery.

MK:PTR

2410-10817

DAILY REPORT PARAPHENYLENEDIAMINE DEPARTMENT

COAL TAR PRODUCTS DIVISION
THOMAS A. EDISON, INC.

Shop Order 3009

Date Nov. 13, 1917

MR. THOMAS A. EDISON:

We submit herewith our report of raw material and finished product on hand this date.
Number of day's supply is figured at a production of 1000 lbs. Paraphenylenediamine per day.

MATERIAL	QUANTITY ON HAND Pounds	NUMBER OF DAYS SUPPLY ON HAND	REMARKS
Aniline Oil	41265	20-1/2	
Acetic Acid (Glacial)	32820	10	
Sulphuric Acid 98%	304097	21	
Mixed Acid	94021	23	
Iron Filings	147006	49	
Sodium Carbonate	27700	69	
Acetic Acid Recovered 66%	4647		
Caustic Soda	51000	64	
Acetanilid			
Para Acetyl, dry			

FINISHED PRODUCT.

ON HAND	ACETATE OF SODA	Pounds	PARAPHENYLENEDIAMINE	Pounds
Delivered to Finished Stock			29365	
Total to be Accounted for			1500	
			50865	
Total Production this Month				9682
Average Daily Production this Month				744.7
Shipped:				

In Stock for Spot Sales

30865

Added to Stock for Spot Sales

Total in " " " "

ON HAND

ACETATE OF SODA

PARAPHENYLENEDIAMINE 30865

Approved:

RCM

[Signature]
Division Manager

Division Bookkeeper.

EMPLOYEES CLASSIFIED REPORT
Coal Gas Products Division

FC

Week from Nov. 16th to 24th, 1917.

<u>OFFICE</u>		<u>OPERATING DEPARTMENT</u>			
Mr. M. Kammerhoff	Division Manager				
Mr. A. E. Cuck	Office Manager				
Mr. W. E. Burton	Division Bookkeeper	Superintendent	1	-	-
Mr. W. Jamison	Assistant Bookkeeper	Typist	1	-	-
Mr. D. H. McDewitt	Cost Clerk - Para	Factory Engineer	1	-	-
Mr. J. Lyssalt	Cost Clerk - Amide	Draftsman	1	-	-
Mr. F. Evans	Timekeeper	Machinist	7	1	1
Mr. J. Mathews	Typist	Pipefitters	4	1	1
Mr. F. Travers	Material Clerk	Lead Burner	1	-	-
Mr. E. Hodas	Clerk	Blacksmith	1	-	1
		Tinsmith	1	-	-
		Carpenters	9	-	1
		Electricians	1	-	1
		Watchmen	-	1	-
		Gatemen	1	1	-
		Poolkeeper	-	-	-
		Riggers	3	-	-
		Ice-Mechanics	2	-	-
		Janitor	1	-	-
		Yard Laborers	1	-	-
		Electricians	2	1	1
		TOTAL.....	37	6	4

CARBOLIC ACID DEPARTMENT

	<u>DAY</u>	<u>NIGHT</u>	<u>TOTAL</u>
Shpg. & Rec. Clerk	1	-	1
Transportation	7	-	7
Watchman	1	1	2
Gateman	1	-	1
TOTAL.....	10	1	11

PARA-PHENYLENEDIAMINE DEPT.

General Foreman	1	-	1
Foreman	1	-	1
Clerk	1	-	1
Asst. Foreman	1	1	2
Acetnified	3	3	6
Mixtion	4	3	7
Reduction	3	3	6
Evaporation	4	-	4
Distillation	5	5	10
Extra Helpers	1	1	2
TOTAL.....	24	16	40

MISCELLANEOUS CONNECTED WITH PRODUCTION

	<u>DAY</u>	<u>NIGHT</u>	<u>TOTAL</u>
Horse & Wagon	1	-	1
Automobile	1	-	1
Toilets and Lunch Assistant	1	1	2
Laboratory	3	-	3
Shipping Clerk	1	-	1
Storekeepers	3	1	4
Transportation	16	-	16
TOTAL.....	26	2	28

GRAND SUMMARY

OFFICE	10
OPERATING	49
AVIATION	0
WHEEL - WATCHMAN	1
CARBOLIC ACID DEPARTMENT	11
PARA-PHENYLENEDIAMINE	40
MISCELLANEOUS CONNECTED WITH PRODUCTION	28
TOTAL	139

SIGNED R. P. Anderson

EMPLOYEES CLASSIFIED REPORT
Coal Tar Products Division.

Week from Nov. 25th to Dec. 1st, 1917.

OFFICE

Mr. G. E. Clark ✓ Division Manager
Mr. A. E. Tuck Office Manager
Mr. W. E. Burton Division Bookkeeper
Mr. W. Jamison Assistant Bookkeeper
Mr. D. H. McDevitt Cost Clerk - Para
Mr. J. Lysalt Cost Clerk - Amido
Mr. P. Evans Timekeeper
Mr. F. Travers Material Clerk
Mr. B. Kodes Clerk
Mr. J. Matthews Clerk

OPERATING DEPARTMENTS

	DAY	NIGHT	HELPERS	TOTAL
Superintendent	1	-	-	1
Typist	1	-	-	1
Machinist	4	1	1	6
Pipefitters	1	1	1	3
Blacksmith	1	-	1	2
Carpenters	5	-	1	6
Masons	1	-	1	2
Watchman	1	1	-	2
Gateman	1	1	-	2
Riggers (4 hrs)	3	-	-	3
Janitor	1	-	-	1
Yard Laborer	1	-	-	1
Electricians	1	1	1	3
TOTAL.....	21	5	6	32

CARBOLIC ACID DEPARTMENT

	DAY	NIGHT	TOTAL
Shpg. & Rec. Clerk	1	-	1
Transportation	7	-	7
TOTAL.....	8	-	8

MISCELLANEOUS CONNECTED WITH PRODUCTION

PARAPHENYLENEDIAMINE DEPT.

	DAY	NIGHT	TOTAL
General Foreman	1	-	1
Foreman	1	1	2
Clerk	1	-	1
Acetanilid #1	3	3	6
Nitration 2 "	4	3	7
Reduction 3 "	3	3	6
Evaporation 4	4	-	4
Distillation 5 "	5	5	10
Extra Help	1	-	1
TOTAL.....	23	16	40

	DAY	NIGHT	TOTAL
Horse & Wagon	1	-	1
Automobile	1	-	1
Toilets & Lunch	3	-	3
Laboratory	1	-	1
Shipping Clerk	2	-	2
Storekeepers	16	-	16
Transportation	1	-	1
TOTAL	25	1	26

GRAND SUMMARY

OFFICE	10
OPERATING	32
CARBOLIC ACID DEPARTMENT	8
PARAPHENYLENEDIAMINE	40
MISCELLANEOUS CONNECTED WITH PRODUCTION	26
TOTAL.....	116

SIGNED R. P. Anderson

Copy for Products

RP

Dec. 31, 1917

CONFIDENTIAL

 UNITED STATES TARIFF COMMISSION
 WASHINGTON, D. C.

COAL-TAR PRODUCTS INDUSTRY

Answers to the following inquiries will be treated as confidential and the information will be for the exclusive use of the Tariff Commission.

Name of Person, Firm, or Corporation James A. Edison, Inc.

Office Address Orange, N. J.

Location of Plant: City Orange, N. J. State N. J.

I. PRODUCTS.

Substances classed, for the purposes of this inquiry as contemplated by law, under the general name of Coal-Tar Products are divided into Groups I, II, and III, specifically defined in the law, a copy of which accompanies this questionnaire.

Your total production during 1917 in gallons or pounds of the commodities included in Group I (Crudes) is asked for. The law requires a comparison of the value of the consumption and production within the United States of the commodities included in Group II (Intermediates) and Group III (Finished Products). For the purpose of ascertaining the value of the consumption the value of your total sales during 1917 is needed. For the purpose of ascertaining the value of the production the value of your total sales during 1917 is needed. For the purpose of ascertaining the value of the production of your stocks on January 1, 1917, and January 1, 1918, are asked for, in addition to your sales. In case your books are so kept that information can not be given in the detail asked for, careful estimates of quantity and value of sales and production will be accepted. Quantity is asked for as a check on value and as a further indication of the growth of this industry.

Group I.—Crudes.—All products that are found naturally in coal tar, whether produced from coal tar or other source, except phenol, are included in Group I. Statistics on the production of these commodities by the distillation of coal tar, water-gas phenol, drip or hulk oil, or by cracking of petroleum or other oils, are asked for below. Statistics of the production by coke-oven plants and gas houses of crude tar, light oils, benzol, toluol, solvent naphtha, and naphthalene are being collected by the Geological Survey. Firms reporting to the Geological Survey need not make a separate report to the Tariff Commission on these items.

Include under **Dead or Cressed Oil** only products which may be used for creosoting. Include under **Other Distillates** single-stain oils, disinfectant oils, and flotation oils which do not contain over 5 per cent of phenol. Include under **Refined Tars** those tars which are used for road treatment, saturating felt, and for protective coatings.

Phenol and all distillates which on being subjected to distillation yield in the portion distilling below 200° C. a quantity of tar acids equal to or more than 5 per cent of the original distillate are not to be included here but are to be placed in Group II.

Creosol, for the purpose of the schedule, is defined as a distillate containing not more than 5 per cent of phenol and at least 50 per cent of the isomeric cresols.

Add to the list any other member of Group I which you produce commercially. The law specifies acenaphthene, cumol, fluorene, methylanthracene, methylindaphthalene, quinolin, and ortho-, meta-, and para-cresol, having a purity of less than 50 per cent in addition to those given below:

Product.	From creosol light oils.	From drip and hulk oil and "hydro-tar."	From coal tar or water-gas tar.	From petroleum or other oil by cracking.	Total production during 1917.	
	Quantity.	Quantity.	Quantity.	Quantity.	Quantity.	Value.
Benzol.....	galls.					
Toluol.....	galls.					
Xylof.....	galls.					
Naphthalene (crude).....	lbs.					
Anthracene (crude).....	lbs.					
Carbazol (crude).....	lbs.					
Cresol.....	galls.					
Pyridin.....	galls.					
Solvent naphtha.....	galls.					
Dead or cressed oil.....	galls.					
Anthracene oil.....	galls.					
Pitch of tar.....	tons.					
Other distillates.....	gals.					
Refined tar.....	bbls. (of 55 gals.)					

Product.	Manufactured and sold in other States during 1917.		Manufactured and consumed in Texas during 1917.		Total production during 1917.	
	Quantity (Gross)	Value.	Quantity (Gross)	Value.	Quantity (Gross)	Value.
o-Nitro-phenol.....						
p-Nitro-phenol.....						
Nitrobenzol.....						
m-Nitrobenzol.....						
p-Nitrotoluenol.....						
Nitrophenylacetamide.....						
Nitrosophenol.....						
Nitrosodimethylamine.....						
Nitro-sulfolin.....						
o-Nitro-toluidin.....						
m-Nitro-toluidin.....						
Nitrazyl.....						
p-Phenetidin.....						
Phenol, U. S. F.....	1,923,705	533,337.7	32,266	12,949.70	1,955,971.7	546,287.40
Phenol, tech.....						
m-Phenylenediamin.....						
p-Phenylenediamin.....	118,667	319,262.5	--	--	118,667	319,262.5
Phenylnaphthylamin.....						
Phthalic anhydride.....						
Boracic, U. S. F.....						
Boracic, tech.....						
Sodium benzoate.....						
Toluidin.....						
o-Toluidin.....						
p-Toluidin.....						
o-Toluidin sulphamide.....						
p-Toluidin sulphamide.....						
o-Toluidin sulphochlorid.....						
p-Toluidin sulphochlorid.....						
m-Toluylenediamin.....						

GROUP III. (6)—DYES AND COLOR MATTERS.—Information is reported to each separate dye is called for, not simply grand totals. Indicate each dye by number in accordance with Scheib's tables, 1911 edition, wherever possible. If a copy of Scheib's is not available, use Department of Commerce Special Agent Series No. 121, entitled "Artificial Dyes and their uses in the United States," by T. H. Norton, using only such serial numbers as have no letter in connection therewith. If any dye made here has not been identified in this way, give the chemical nature of the dye in such terms that it can be properly classified. If you sell more than one standard or strength of the same dye, list each strength separately. This detail is needed to secure the value of the total production. Do not sell a mixture of dyes under a trade name, but each dye in such terms that it may be properly classified. This is especially important as a method of determining whether or not a dye belongs to the class exempted from the special duty of 6 cents per pound, namely, "natural and synthetic alizarin, and dye obtained from alizarin, madder and various natural and synthetic indigo and all indigoids, whether or not obtained from indigo." (See extra sheets if necessary.)

Scheib's No.	Product.	Sales, 1917.		Sales on hand Jan. 1, 1917 (Gt. A.)	Sales on hand Jan. 1, 1918 (Gt. A.)
		Foreign.	Value.		
.....	I. Nitro coloring matters:				
4	Naphthal green.....				
.....	II. Nitro coloring matters:				
7	Naphthal yellow.....				
.....	III. Sulfone coloring matters:				
9	Direct yellow.....				
.....	IV. Pyrazolone coloring matters:				
23	Taustrazine.....				
.....	V. Azo coloring matters:				
33	Chrysofline.....				
34	Chrysofline B.....				
46	Alizarin yellow.....				
68	Alizarin yellow B or mordant yellow.....				
134	Metallic yellow.....				
145	Orange II.....				
252	Bismarck brown.....				
284	Bismarck brown 2B.....				
.....	VI. Diphenylmethane coloring matters:				
403	Auramine.....				
.....	VII. Triphenylmethane and Diphenyl- methyl-methane coloring matters:				
405	Malachite green.....				
612	Magenta (or Fuchsine).....				
615	Methyl violet.....				

(4) **PARAFFINATED CAMELINA**.—Give figures on each substance separately. Para-aminophenol should be placed under Group I rather than here because it is so placed in the act.

Product.	Sales, 1917.		Stocks on hand Jan. 1, 1917 (DIA.).	Stocks on hand Jan. 1, 1918 (DIA.).
	Pounds.	Value.		
Hydroquinone.				
Methyl p-aminophenol sulphate.				

(5) **MERCAPTAN**.—Give figures on each synthetic medicinal separately. Do not include medicinals which are not made directly or indirectly from the substances in Groups I and II. Give the quantity and value of the pure synthetic medicinal but do not give quantity and value of tablets, solutions, etc., in which the pure synthetic medicinal has been mixed or compounded with other ingredients.

Product.	Sales, 1917.		Stocks on hand Jan. 1, 1917 (DIA.).	Stocks on hand Jan. 1, 1918 (DIA.).
	Pounds.	Value.		
Acetanilid, U. S. P.				
Acetophenolide				
Acetylsalicylic acid (aspirin).....				
Antipyrine				
Beta naphthol benzoate.....				
Bismuth ketosulphide.....				
Bismuth tribromophenol.....				
Methyl salicylate.....				
Phenolphthalein.....				
Phenolsulphonates (calcium, sodium, zinc, etc.).....				
Sulol				
Sodium salicylate.....				

(6) **FLAVORS**.—Saccharin should be included. Give figures on each substance separately.

Product.	Sales, 1917.		Stocks on hand Jan. 1, 1917 (DIA.).	Stocks on hand Jan. 1, 1918 (DIA.).
	Pounds.	Value.		
Saccharin				
Osmanol (synthetic)				

(7) **PREPARATIONS**.—Information is asked in regard to synthetic perfumery materials obtained, manufactured, or derived in whole or in part from any of the substances in Group I or II.

Product.	Sales, 1917.			Stocks on hand Jan. 1, 1917 (DIA.).	Stocks on hand Jan. 1, 1918 (DIA.).
	Pounds.	Value.			

(8) **SYNTHETIC PARAFFIN**.—This term should be interpreted in a broad way to include not only condensation products of phenol and formaldehyde but all similar products derived from cresol or other substances. Materials of this class should be subdivided so far as possible according to the raw material.

Product.	Sales, 1917.			Stocks on hand Jan. 1, 1917.		Stocks on hand Jan. 1, 1918.	
	Gross weight.	Net content.	Value.	Gross weight.	Net content.	Gross weight.	Net content.
Derived from phenol.....							
Derived from cresol.....							

SUMMARY.

Product.	Total production, 1917.		Sales during 1917.		Inventories on hand in plant when produced.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Group I.....			X X X	X X X	X X X	X X X
Group II.....	3,500,825	1,750,750.00	2,198,600	1,315,221.76	1,302,616	749,578.24
Group III.....					X X X	X X X
AGGREGATE.....	3,500,825	1,750,750.00	2,198,600	1,315,221.76	1,302,616	749,578.24

2. EMPLOYEES AND RATES OF PAY.

Give the number on December 15, 1917, as per pay roll. If this is not a representative day, or if data are not obtainable, give data for nearest representative or normal day and state day and month here: JUNE 16, 1917.

If you are making products other than coal-tar products, give the number engaged in coal-tar products only, if feasible. If the same men work partly on coal-tar products and partly on other products, give the nearest estimate possible of the men engaged in coal-tar products. If you sell only coal-tar products and by-products obtained in making coal-tar products, your total force should be given even though some employees are engaged in making acids, lye, etc., consumed in making coal-tar products, or in necessary subsidiary operations such as recovering spent acids, packing, etc.

Weekly rates at pay.	Number of—	
	Chemists and technically trained men.	Employees not technically trained, engaged in major auxiliary operations and repairs.
Under \$5		9
\$5 but under \$10		2
\$10 but under \$15		12
\$15 but under \$20		126
\$20 but under \$25	1	23
\$25 but under \$30	2	67
\$30 but under \$35		21
\$35 but under \$40	1	1
\$40 but under \$45		2
\$45 but under \$50		2
\$50 and over	2	33
Total	9	235

3. RESEARCH AND EXPERIMENTAL WORK.

Do you have a separately organized research department? No

Total cost of research and experimental work, including salaries, materials, machinery, etc., for the year

Credit salable products made during experimental work if your books show any such credits

Net cost of research and experimental work

If your research department is not engaged exclusively in coal-tar products or in problems arising in the manufacture of coal-tar products, indicate here your best estimate of the proportion of the net cost which may fairly be charged to coal-tar products

This is to certify that the information contained in this schedule is complete and correct to the best of my knowledge and belief and covers the period from JANUARY 1, 1917, to DECEMBER 31, 1917

Stephen D. Whitwell
 CHIEF OF RESEARCH DEPARTMENT
 THE PRESIDENT ELECTRIC COMPANY

(Print and address)

**Special Collections Series -- Chemical Production Records
Organic Chemical Plant Records
Phenol Division (1915-1916)**

These documents relate to the operations of Phenol Plant No. 2, owned by Thomas A. Edison, Personal, which began producing phenol (or carboic acid) during the summer of 1915. Among the selected items are several daily production reports signed by division manager Edgar S. Opdyke, bearing comments by Edison. There is also a communication from Opdyke's successor, Wilfred S. Dowling, regarding an explosion in June 1916 that injured three employees and destroyed part of the building. Other correspondents include Edison employees Charles T. Dally and William H. Mason.

Less than 5 percent of the documents have been selected. The unselected material consists primarily of financial and accounting documents and numerous routine daily production reports.

PHENOL DIVISION
THOMAS A. EDISON

Neutralizing, Settling, Storage, Re-treating

Pot No. _____

SILVER LAKE, N. J., ^{11/10} _____ 1915

Operation No.	Common Salt	Chamber Acid	Sulphuric 98%	Production Crude Phenol
410				168 lbs
411				
412				
413				170
414				
415				
416				173
417				
418				

514 lbs
 7
 359⁸

No 1 Steel Tankage 4360 lbs Phenol

WJ

1 gal producer 7 lbs pure phenol

PHENOL L. SION
THOMAS A. EDISON

Neutralizing, Settling, Storage, Re-treating

Pot No. _____

SILVER LAKE, N. J., 12/2 1915

Operation No.	Common Salt	Chamber Acid	Sulphuric 98%	Production Crude Phenol
512				120 gal
513				
514		Daily		
515				115 "
516		What is the matter		
517				
518		This looks <u>very bad</u>		125 "
519				
520				
521		Edison		127 "
522				
523				
524		Mr Edison		127 "
525		The only way I can		
526		account for this is that the Phenolate has been neutralized to hot		
		Daily		610 gal
		Spence		7 427°

PHENOL DIVISION
THOMAS A. EDISON

Form 12

Daily Report of Raw Material and Finished Product On Hand

Silver Lake, N. J., Dec 8 1915

Material	Quantity On Hand	No. of Days' Supply On Hand	Quantity On Order
Sulphuric Acid			
Oleum	750 471#	4 1/2 ✓	
Salt	70 840#	10 1/2 ✓	
Benzol	none	-	
Caustic Soda	630 825#	63 ✓	
Calcium Chloride	3600#	✓	
White Scheel Salt	187900#	125 ✓	
Coal			

Chamber Acid 46 117# 2 1/2 ✓

*Mr Edison
It is due to stopping
about 1 1/2 days - Review
average - Meadmont*

*Meadmont
Water falling off
should be 45000*

Total Production Phenol Dec 1st to Dec 7th incl. 27209# ✓
Average daily production " " 3887# ✓

Per cent of yield from Crude Phenol 72.2%
S.L.

I

[Signature]

PHENOL DIVISION
THOMAS A. EDISON

Neutralizing, Settling, Storage, Re-treating

Pot No. _____

SILVER LAKE, N. J. Dec 8 1915

Operation
No.

Common
Salt

Chamber
Acid

Sulphuric
58%

Production
Crude Phenol

584 }
585 }
586 }

587 }
588 }
589 }

Daily

What was the trouble
 in making daily reports please
 give reasons for small
 capacity. it will
 save a lot of
 writing &
 phoning

155 Gals

130 "

785 Gals

1895

2

Dec 14-15

Dear Sir

Got your note of Dec 8 yesterday at 6 PM explaining reason for not making daily reports also of capacity. My reports are turned into office each morning. A technical reason for low production I understood. Mr. Spedice sent you a report each day - maybe not the details. In the future I will send them myself.

On the 8th - one P. anolite neutralized on account of No 2 tank had to be repaired - started to clean tank for Lead Sourness at 7 AM finished tank at 10 PM had acid mixed for neutralizing at 4 AM on the 9th

Respectfully
Trully

PHENOL DIVISION
THOMAS A. EDISON
SILVER LAKE, N. J.

April 5, 1916.

Barbolic

Mr. W. H. Meadowcroft,
Laboratory.

Dear Mr. Meadowcroft:-

I have been checking up some of the stock on hand, and find that we are getting rather short on some materials.

OLEUM -- Stock on hand April 5th, 18002 gallons; we are trying to average 6 sulphonations daily, 1278 gallons; this would give a stock on hand of 14 days. If we only average 5 sulphonations daily, 1055 gallons, we have 17 days supply.

I understand we are receiving on contract 150 tons per month, 300000 lbs = 18750 gallons; this is only half the amount we use, assuming 6 sulphonations per day.

Therefore, if we can average 6 sulphonations, we will be out of Oleum in 28 days; and if we only average 5 sulphonations, we will be out in about 34 days.

SHEEL SALT -- We have on hand about 57200#; our average daily consumption for past ten days has been 1758 lbs; therefore, at present rate of consumption, we will be out of Sheel Salt in about 32 days.

Yours truly,

W. H. Mason

$\frac{1278}{5}$

600

PHENOL DIVISION
THOMAS A. EDISON
SILVER LAKE, N. J. June 9, 1916.

to auto file

*Noted
W. J.*

Mr. Thomas A. Edison,
Laboratory.

Dear Sir:-

As I personally told you on June 7th, in the early morning of that day an explosion occurred at the plant here, due, I believe, to over-sulphonating of Benzol, causing the Benzol-Sulphonic Acid to overflow the pot, and the Benzol fumes to become ignited by a spark from the motor. The explosion carried away a part of the building, and caused injury to three employees, for all of whom I did arrange proper medical care, and whom I have since seen, and who expect to recover from their burns within a very short time.

The building has been repaired, the machinery is in operation and the work is going on as usual.

Our experience, I believe, has taught us to be sufficiently cautious to prevent a repetition of so disastrous an occurrence.

Yours very truly,

H. S. Rowling
Manager.

**Special Collections Series -- Chemical Production Records
Organic Chemical Plant Records
Johnstown Benzol Plant (1915-1918)**

These documents relate to the benzol absorption plant built by Edison at the works of the Cambria Steel Co. in Johnstown, Pennsylvania. The selected items pertain to design and operation issues in which Edison took a direct interest. Included are documents relating to the sale of toluol to the British Chemical Co. of Canada for the manufacture of trinitrotoluene (TNT) and the closure and dismantling of the plant in 1918 at the conclusion of Edison's agreement with the Cambria Steel Co. Also included are daily production reports prepared by plant manager John Bacon, Jr., bearing comments by Edison, along with communications from William H. Meadowcroft, who managed Edison's chemical business. Other correspondents include engineer William H. Mason, who oversaw the construction of the plant, and John T. McDermott of the Efficiency Service Dept.

Approximately 5 percent of the documents have been selected, including all substantive items relating to Edison's interests or involvement in the Johnstown plant. The unselected material includes correspondence regarding production, shipping, and repair; numerous additional daily reports, some of which contain marginalia similar to that on the selected items; and a variety of financial and technical documents.

Daily Report T. A. Edison Benzol Plant

Johnstown, Pa.

Date July 5 1915

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 47%	1150				
No. 1 Badger					
In Still <i>Benzol</i>					
Heads					
90% Benzol	1125	375			
90% Toluol	250	250	550		
Sol. Naphtha	84	5050	700		
Badger Still	No. 2	No. 3			
In Still <i>Benzol</i>					
Heads	417				
are Benzol	386			2834	
Com. Benzol					
Pure Toluol				560	
Com. Toluol	477		5277		
Pure Sol. Naphtha				782	

Mr Bacon

What does 47% mean - does it mean that the Light Oil has 47% Pure Benzol or 47% of 90% Benzol - or the 1150 gal has 47% of Benzol Toluol & Solvent Naphtha or what does it mean

2

July 6th. 1915.

Mr. John Bacon, Jr.,
% Coke Oven Department,
Cambria Steel Company,
Johnstown, Pa.

Dear Sir:

I am writing you again in regard to your daily reports, and I want you to take this letter in the proper spirit. We know the difficulty of rendering intelligible reports of a Benzol plant and realize you are doing the best you can, but neither Mr. Edison nor I can obtain from the reports just what we want to know in order to figure on the actual results of the operation of the plant.

Of course, we realize that the difficulty of making reports is increased because of the daily shifting of one class of product into another class. So let us take this up patiently and see if we cannot work it out little by little, and perhaps work out some form of report that will be much more satisfactory and give all of us the kind of information that will be practical. I am sure you are just as anxious to have it as we are to get it.

If we were dealing with the manufacture of so much ordinary merchandise, we would start with so much raw material, and at the end of the day we would have a certain quantity of finished material, a certain quantity of raw material, a certain quantity of waste material and a certain quantity of material in progress. If these were added together, the total should equal what we started the day with.

Now, it seems to me that the operation of a Benzol plant should come under a system of reporting of a somewhat similar nature. I have tried time after time to get a balance by adding all your figures together on the reports of succeeding days, but never could do it. For instance, on your report of July 1st you show a total gallonage of 19,343 gallons, taking into account the 2,000 gallons Benzol in No. 1 Badger, yet your report of July 2nd shows a total of 21,116 gallons, a difference of 1773 additional, and I am sure you did not make this quantity of light oil that day.

I return herewith your report of July 2nd for illustration. You omitted to say how much light oil you made, so, for the purpose of the argument, I have assumed 1,000 gallons of 39%. Please look at the figures I have marked in pencil at the foot of the report. Those show that on that day you had on hand and "made" a grand total of 21,116 gallons.

If this system of reporting is correct, your report of the next day would show a grand total which would be equal to the total of the day before as increased by the number of gallons of Light Oil obtained on the day the report is made. Your figures of material in Stills, on hand Crude,

Page two-

on hand washed, and on hand Pure might have changed, but the grand total each day should balance with the grand total of the day before after adding the day's production of Light Oil. Of course, your shipments from time to time should be deducted, thus making the grand total a net total.

I know that you will have thought of before you arrive at this part of my letter. You will say to yourself: "Mr. Meadowcroft has not thought of the losses". I have thought of this, however, and left it until I explained my idea of the principle of reporting. The losses whatever they may be, are the things that Mr. Edison is very desirous of ascertaining, and at this moment we do not see any more convenient way of getting at the facts.

If you will please make these reports a very serious business and take pains to have them really accurate you will very quickly find out where your losses are, and by constant observation we shall soon be able to get a line on them and perhaps make some improvements.

I assume that, of course, you keep copies of your daily reports. If you will get out the copies of your reports of June 30, and July 1, you will see why Mr. Edison and I find it impossible to reconcile the daily reports with each other. If you will figure out the total gallonage of each day you will see that these reports do not correspond with each other. There is a big discrepancy. Besides, there is a sudden appearance of 2,678 gallons of Pure Toluol on July 1, which you could scarcely have made in one day. I have not overlooked the 3,600 gallons Commercial Toluol reported June 30.

So, you see, we really ought to try and get things straightened out. Perhaps you may have to take account of stock to begin the new reports with.

An illustration will make it more clear what I have in mind. I have just received your reports of July 3 and 4. The total gallonage July 3 was 21,531 gallons, an increase over July 2 of only 415 gallons, although you made 1189 gallons of Light Oil. The report of July 4 shows a total gallonage of 21,621 gallons before deducting your shipment of 2,867 gallons. This shows an increase of only 90 gallons over July 3, although you made 1,340 gallons of Light Oil.

Will you please take up this matter immediately and let me hear from you. I expect to leave on Saturday night for a vacation and want to see that you understand before I leave.

Yours very truly,

(signed) Wm. H. Meadowcroft.

Assistant to Mr. Edison.

(Cambria)

Johnstown Pa 7/7/15
Mr. Wm. H. Meadowcroft.
See to Mr. Edison
Orange, N. Y.

Dear Sir:

Enclosed find daily report, filled out up to the losses. The hand part is going to get at the losses, ~~on~~ daily, as we change a still one day and then it will run for two days and half and there is no accurate way of getting at the loss until the still is empty. The loss in the washer shows up every day but in the stills, you only know what comes out.

Let me know how you wish to handle this loss daily.

Yours truly
John Bacon Jr.

Mr Edison

It looks as if we were getting nearer the facts - I have told him to put down his losses as he ascertains them.

Meadowcroft

I will follow this up on later reports

[ATTACHMENT/ENCLOSURE]

Daily Report T. A. Edison Benzol Plant

Johnstown, Pa.

Date July 7 1915

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 48 %	1004	2243			
No. 1 Badger					
In Still <i>Empty</i>					
Heads					
90% Benzol		375	729		
90% Toluol		250	550		
Sol. Naphtha	84	4384	1382		
		7252	2661		
Badger Still	No. 2	No. 3			
In Still <i>1767- Benz.</i>					
Heads	729				
Pure Benzol	220			3054	
Com. Benzol					
Pure Toluol				560	
Com. Toluol	40		5317		
Pure Sol. Naphtha				732	
	989			4346	

Made to day -	Light Oil	1004		
"	#1 Badger	84		
"	#2 Badger	989		
On Hand	Crude	7252		
	Washed	(2661)		
	Pure	4346		
		21653		
		170		
		21483		

Losses
#1 Badger 16 Gals
Washer 75 "0
#2 Badger 79
170

Mr. Edison:

Bill

I see by Bacon's reports that he has quite a good jag of pure Benzol - He might as well load up one of the tank cars that have been standing so long, and ship it when he has 7 or 8 thousand gallons.

Do you notice how much more satisfactory these reports are now? They balance every day, and it is much easier to follow what he is doing, because he is now obliged to account for each day's product, or his report would not balance.

One thing strikes me as

2

peculiar, and that is the great variation in the light oil percentage. In these three reports it varies from 33% to 52%. So that because the quality of the coal varies?

I see Bacon has a good bunch of Pure Solvent Naphtha on hand. He might as well ship it to Hoffman. If he is running short of drums, we could send him the empty drums from the Mayetta shipment, as we are going to use only tank cars for the Wisconsin Benzol. If you approve, we will instruct Mr. Dermott at Silver Lake to ship these empty drums to Bacon. I enclose a memo. to him, which Harry Miller can mail or telephone.

3

There is also a bunch of drums from Woodward. These could go to Bacon also, as I suppose you will have only tank car shipments from Woodward. Bacon will use more drums than Woodward because of the Solvent Naphtha and Toluol shipments being in drums. Perhaps Hoffman could take his Solvent Naphtha in tank cars. All the Woodward Toluol on Hercules contract will be shipped in tank cars.

I am wondering whether Opdyke at Woodward plant is making his daily reports to balance, same as Bacon's. I gave him full instructions.

4

I am very anxious to know what progress you have made on the new Phenol plant. Will you please tell Harry Miller so he can drop me a line about it.

All the Phenol you make in the new plant may be put in the galvanized iron containers from American Can Co., except that for Mitsui, which must be put in the new galvanized drums that we have in stock for his Phenol - He bought them - Opdyke knows about them.

I am sure you will be gratified to learn that the news of your heading the new

Committee for the Government has given the people at large a great deal of satisfaction and a feeling of increased safety. It has caused much comment of a very favorable nature.

I am glad to say that I am just beginning to feel some benefit from the change. I was a little weary, and my eyes were in very poor condition.

I shall be glad indeed to see you go away for the change and rest you need so much.

With all good wishes.

Meadowcroft

July 21/15

Mr Edison:

I intended to say in my previous memo, that when Bacon has 3000 gallons Iohol we can make another shipment on British contract.

My stenographer, Rudolph, has the blank requests for inspection, and he knows how to fill them up and send them. When the inspection has taken place Bacon will notify you and you can give him instructions to ship. Harry Miller and Rudolph can take care of the rest.

Meatsoff,

July 21/15

July 21/15

Mr Mc Dermott:

If you can get together
one or two carloads of empty
drums, please ship them to
Thomas A. Edison Acetylene Plant,
Cambria Steel Co, Johnstown, Pa,
via Erie and Penna. R.R.

I refer to the drums that
were used to send our Acetylene
from Mayville and Woodward.

When you make shipment
notify Mr. H. J. Miller at Laboratory,
and he will write Mr Bacon
at Johnstown.

W. H. Meadows

Daily Report T. A. Edison Benzol Plant

Johnstown, Pa.

Date July 23 1915

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 41 %	1074	4084			
No. 1 Badger					
In Still 85% Benzol					
Heads					
90% Benzol	600	1267	493		
90% Toluol	100	501	728		
Sol. Naphtha	284	3126	-		
		8978	1221		
Badger Still	No. 2	No. 3			
In Still 2885 Benzol					
Heads	237				
re Benzol	-			6732	
Com. Benzol	-			2658	
Pure Toluol	-				
Com. Toluol	150		4084	-	
Pure Sol. Naphtha	30			30	3502
			5305	9420	

1 Badger - 856
 # 2 " - 2885
 On hand Crude - 8978
 " " Washed - 5305
 " " Pure - 9420
 Shipped 3502
 30946
 Losses 98
 31044


Losses
 Wash. Benzol - 57
 # 2 Badger - 41
 98
 On Hand July 23 - 30876 gals
 In add 1074
 31950

Pure Solvent Naphtha
 tank cleaned out. Content
 of water in this tank 90.6 "
 31044 "

John Baranjan
 Gen. Mgr.

[ATTACHMENT/ENCLOSURE]

Mr. Edison:


This clears up a question
that was in my mind. I
wondered where the 900 gallons
of Solvent Naphtha had gone.
I see from this report that there
were 906 gallons of water in the
Solvent Naphtha tank.

I see by the report of the
25th that they have 7981 gals.
One Barrel on hand. There will
soon be enough to load a tank
car.

Meadowcroft

July 30/15

Daily Report T. A. Edison Benzol Plant

Johnstown, Pa.

Date *July 26* 191*5*

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 26%	1036	1210			
No. 1 Badger					
In Still 2835 Benzol					
Heads					
90% Benzol	350	1676	2478		
90% Toluol	330	—	1489		
Sol. Naphtha	480	4156	—		
		7042	3967		
Badger Still	No. 2	No. 3			
In Still <i>Empty</i>					
Heads					
re Benzol	—			7981	
Com. Benzol	—			—	
Pure Toluol	172			2830	
Com. Toluol	576		4660	—	
Pure Sol. Naphtha	117			147	

8627 10958

#1 Badger = 2835
 #2 " = 2274
 On hand Crude = 7042
 " Washed 5627
 " " Pure 10958
 29462
 Losses 927
30389

Losses

Washers = Benzol 186
 " Toluol 119
 #1 Badger Benzol 452
 #2 " " 170
 927
28354
 On hand July 25 28354
 made 1036
30390

John Bacon Jr
Per J. M. Taber

[ATTACHMENT/ENCLOSURE]

Mr. Edison:

Had we not better have Bacon send us a few gallons of his pure Benzol? He has nearly a car load now.

It had better be sent to Mr. Miller or to me at the Laboratory, so it will be sure to be identified.

Meadowcroft

8/2/15

I expect to be at Laboratory on Monday.

[By W. H. Mason]

Dec 1st 15-

Mr Edison

We are running in to trouble fast
at Johnston as shown by the
stock increase

Crude on stock

Nov 1 st	Nov 30	gain
34665	47543	12878

This is equivalent to 440 gal per day.

Will soon fill our stock tanks at this rate

Johnstown Pa. 12/2 15

Mr. A. Warsaw,
Edison Laboratory,
Orange. N. J.

Our present competition is with fifty percent crude. We cannot run number one Badger fast enough & get proper splits. If we run it too fast number two Badger has to do the work of number one. Consequently we run number two at a disadvantage - Can handle all washed mercury we have on hand -

Would like to ship heads and tails up to our hundred on the next few distillations from Badger number two.

Our running Solud now.

(Has going to send down as telegram) -

At late we have been trying to run #1 Badger too fast and that causes Brng. into Sol and Sol into Sol - that means that #2 has to make the splits and we do not get the

account of C.P. off that we showed.

We have everything in good hope now
and I think by running #1 Badger
just right we may be able to take
care of the whole thing but anything
a little out of the ordinary is going to
put us back - We lose about 5ths
in exchanging a sell & that into one
back - We are behind about 16000 cents
& sell comes out our own little for
#1 - I think would do the trick -

Went to you this in mine -

Yours truly
John Bacon

Rec'd

12-30-15 -

Johnstown Pa -

Dear Mr. Moore:

From this way we have been running lately in fact for the past two months that is not getting our usual amount of C.P. and it has struck me that the following is the reason - but every charge we of course make a certain amount of Cow. Bungle. This goes back to the washed Bungle then with the C.P. taken out - and is again charged into #2 Dodge and the same process is gone thro again - this makes in the course of a month or so a bunch of Cow. Bungle going the rounds that we get very little out of it still have to handle it from day to day and in handling it we are cutting down our product of C.P. - I do not think it pays to keep sd running this tho 2 months ago we did not have any trouble getting 1600 Gals. C.P. B. from 3000 charge and now we

only get about 1200 and some times
less - as a test, will charge
next time only washed Bangor & see
how it comes out - I have noted
the same thing in Cow. Solow - 1

If it proves that the Cow Bang-
is cutting down our C.P. production
wouldn't it be a good plan to
see every 200 yds, enough to keep
us cleaned up - or perhaps it
should be washed over again &
possibly but thro #1 Dags -
shut it over.

In haste
Benson

The above does not apply to
heads as they come off all right
the trouble is between C.P. B -
79 & 100 -

B

Daily Report T. A. Edison Benzol Plant

Johnstown, Pa.

Date July - 4 1916

RWT

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 45%	1183	5335			
No. 1 Badger					
In Still 768 ^v					
Heads					
90% Benzol	450	12239	9689		
90% Toluol	350	1933	7919		
Sol. Naphtha	250	2953	2517		
Badger Still	No. 2	No. 3			
In Still ¹⁸⁷⁸ 5786 ^v = 3					
Heads					
Pure Benzol				4531	
Com. Benzol	1125				
Pure Toluol				7059	
Com. Toluol					
Pure Sol. Naphtha				2446	

22460^v 20125 14036
15125

Crude	22460		
Washed	20125	Oil Hand July 3-	64120
Pure	14036	Loss	1183
No. 1 Badger	768		65303
2 "	1878	Loss	250
3 "	5786		65053
	65053		

Loss of oil is holding back the output of 50%

[ATTACHMENT/ENCLOSURE]

White

Meadcroft OK

When will the oil
arrive = I understand
Mason to say it was ordered
fund out.

Σ

Mr Edison
It was received at Johnston
this morning - Meadowcroft:

July 6, 1916

Daily Report T. A. Edison Benzol Plant

Johnstown, Pa.

Date July 19 1916

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 50%	1528	3887			
No. 1 Badger					
In Still 1786					
Heads					
90% Benzol	1050	11539	13968		
90% Toluol		2333	7848		
Sol. Naphtha		3483	1442		
Badger Still		No. 2	No. 3		
In Still No. 390 No. 4663					
Heads					
Pure Benzol				7333	
Com. Benzol	264				
Pure Toluol	265				10672
Com. Toluol					
Pure Sol. Naphtha					1154

21212 22958 19159

Crude	21212	On Hand July 18	69060
Washed	22958	Made	1528
Loss	19159		
#1 Badger	1786		70558
2 "	390		420
0 "	4663		70168
	70168		

Daily Report T. A. Edison Benzol Plant

Johnstown, Pa.

Date July 20 1916

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 51%	1309	5196			
No. 1 Badger					
In Still 536					
Heads					
90% Benzol	850	11439	12196		
90% Toluol	400	2733	7718		
Sol. Naphtha		3753	1442		
Badger Still		No. 2	No. 3		
In Still 2998 #2					
Heads 3951 #3					
Pure Benzol				7333	
Com. Benzol	712			10755	
Pure Toluol	23				
Com. Toluol	170				
Pure Sol. Naphtha	23			1737	

21821 - 21356 - 19325

Crude -	21821	On Hand July 19.	70168
Washed	21356	Made " "	1309
Pure	19325		71477
#1 Badger	536	Loss	490
2 "	2998		70987
3 "	3951		
	70987		

Steam loss 3 1/2 hours.

[ATTACHMENT/ENCLOSURE]

Meadcraft —
Note Total.

Better deliver all you can
under Contract,

↳

Five risk is great & we can
only get Cost,

↳

Daily Report T. A. Edison Benzol Plant

Johnstown, Pa.

to July - 26 1916

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 47%	1304	4757			
No. 1 Badger					
In Still 1708					
Heads					
90% Benzol	1150	9464	15008		
90% Toluol		1853	3806		
Sol. Naphtha	25	3438	2542		
Badger Still	No. 2	No. 3			
In Still ⁷⁶¹ 4620 = 3					
Heads				8800	
Pure Benzol					
Com. Benzol	1180			11350	
Pure Toluol					
Com. Toluol				1448	
Pure Sol. Naphtha					
		19512	26356	21598	

Large carload
500 gallons going
to Dept. temporary
Friday -
Measuring

Crude -	19512		
Washed	26356	W. Ham: July - 25	73938
Pure	21598	Black	1304
#1 Badger	1708		75242
2	761	Pans	587
3	4620		74555
	74555		

Charles Edison

Tell Bacon its impossible to know just yet what Commission will do in any event keep on with the bill till all settled & I will give him 2 months

T. A. EDISON

GENZOL REANT

Address will give you 2 months to tell him another

FE

Mr. The Hon. Charles D. ...
Asst. to Mr. Edison, ...
Orange, N. J.

Dear Mr. Meadowcroft:

This is more or less a personal

letter with the idea of treating every body
concerned fair - We all know that the contest
between Mr. Edison and the Columbia Steel Co expires
about the first of March, with small prospects
of its being renewed - My point is this -
I cannot afford to lose a month or two
looking for a position after that time, and I
do not want to take the first position that is
offered - I am very willing to stay here until
everything is settled up, only I do want to
know my position at the end of that time -

I have been directly, and indirectly, in
Mr. Edison's employ for about seven years and

Charles - Bacon writes your man
I am not
offered
I cannot afford to lose a month or two
looking for a position after that time, and I do not want to take the first position that is offered - I am very willing to stay here until everything is settled up, only I do want to know my position at the end of that time -

Mr. Edison:
This seems to be
very fair on the part of Edison.
Some men would have jumped up
a job and drop out;
What shall I say to
him? Most sincerely
yours

T. A. EDISON
BENZOL PLANT

JOHNSTOWN, PA. _____ 101

would like to continue so, but if there is no
position for me he will not need me -

If Mr. Edison does not want me for the
first of March I can make my arrangements to
fit his - just so we have an understanding -

I hope you understand this - the way it is
meant, and that I do not want to leave before
the first -

With kindest regards I am

Yours very truly
John P. Baugh

[INCOMPLETE]

Dec. 22, 1917

United States Ordnance Dept.,
Chemical Flame Projection Div.,
Room 530, 1800 Virginia Ave.,
Washington, D. C.

Attention Mr C W Hunter

Gentlemen:-

Referring to your recent conversation with Mr. Chas. Edison in Washington, D. C. and telephone conversation with the writer today with reference to the Edison Benzol Plant at Johnstown, Pa. which is operated from the gases furnished by the Cambria Steel Company.

Some three years ago, Mr. Edison erected this benzol plant on the ground owned by the Cambria Steel Company, and under a three year contract which expires January 1st, which contract provides, at the expiration of this period, the Cambria Steel Company would have the right to purchase the plant at two thirds of its original cost, and failing to exercise this option, Mr. Edison is obligated to remove the plant from their premises.

The plant in question costs \$70,569.46, all in accordance with the attached schedules supporting this amount, and it would probably cost \$125,000.00 to reproduce the plant today under the present high cost of material. We believe the plant has depreciated not to exceed an average of 20% during the three years operation. We are now notified by the Cambria Steel Company that they do not desire to exercise the option contemplated by the contract to purchase the plant at two thirds of it's original cost, and that unless we are prepared to sell same to them at \$15,000.00 to \$20,000.00, that Mr. Edison will be expected to remove same from their premises.

During the calendar year of 1917, we have produced from this plant ap.65000 gallons of toluol, all of which has been used in the manufacture of Tri-nitro-toluol. At the present time all of the toluol which we produce at the Edison Benzol Plant at Johnstown, Pa. as well as the Edison Benzol Plant at Woodward, Ala. is being sold under instructions from the United States Navy Department to the British Chemical Company at Trenton, Ont. and at the United States Government price of \$1.50 per gallon.

In consideration of the sale of this material to the British Chemical Company, they are releasing Canadian toluol to the Canadian Explosives Company who in turn are manufacturing T N T for the United States Navy.

December 26, 1917.

Mr. John Bacon,
C/o Cambria Steel Co.,
Johnstown, Pa.

My dear Mr. Bacon:

I have delayed writing you inasmuch as I wanted to find out what the Cambria people expected to do with our plant. It is still impossible to know what they will do. To ease your mind in regard to your personal future, should the Cambria people elect to have us dismantle the plant, we trust that you will stay to take charge of this work. Should they elect to purchase the plant and not retain you as Manager, or should you not care to remain with them, we will give you two months pay. It is my hope however, that we will be able to place you in some position satisfactory to you in one of the Edison interests. However, by the suggested plan, you will have two months to find other employment should we be unable to place you here.

I would like to be definitely advised by return mail if possible, whether the Cambria Company are definitely building a new Benzol plant to take care of their excess gases, or whether they are planning to use their present plant and merely enlarge it, or whether they do not expect to make use of their total gas production. If they are building an entirely new plant, please try and get some information as to when this plant will be in operation.

Yours faithfully,

NEW JERSEY PRODUCTS, Incorporated
165 Broadway
New York

Function Edison Benzol Plant, Johnstown Memorandum No. 259
Subject Plant dismantling Date April 9, 1918

To

Mr. E. J. George,
Edison Benzol Plant,
Cambria Steel Co.,
Johnstown Pa.

Dear Mr. George:-

On my return I duly find your letter of April 3rd and note your advice that you have shipped four loaded cars to Silver Lake. I presume these are the cars referred to in your several advices, to wit:

April 1st LV car 65642 containing 38 drums of benzol
" 2nd CB&C car 112806 containing 44 drums xylol and
3 drums benzol
March 29th, PL car 526422 containing 24 drums benzol and
14 drums xylol
Please tell me what the fourth car contained, number, etc.

I note regarding the leak in one drum and that it will go forward later.

I suppose the release of the equipment of the Cambria Steel Company will make it possible to ship the pumps and other equipment to the Woodward Company without delay. Please hurry this all possible.

Regarding the rectifying column. Please get the best offer which you can from the local scrap dealers in connection with those copper stills; also the same applies to any other scrap which you have for sale. After you have received their quotations, forward them to me for comparisons here as it may be best, as you suggest, to load one complete scrap car.

Please arrange to ship the assortment of pipe fittings to Thomas A. Edison, Inc. C & M Div., Orange, N. J. This will include the large as well as the small fittings. Please send me a list of these fittings as promptly as possible.

I think the stills should be taken down carefully, contemplating that they may be used again although the probabilities are that they will have to be scrapped.

It is now my understanding that you have shipped all of the finished stock and that you still have on hand to ship the following:

15 drums crude 90% benzol
8 " " toluol
1 drum C. P. Benzol

load this material and send same forward to Silver Lake as promptly as possible, advising.

Yours very truly
NEW JERSEY PRODUCTS, INC.

W. C. Emery

**Special Collections Series -- Chemical Production Records
Organic Chemical Plant Records
Woodward Benzol Plant (1915-1918, 1920)**

These documents relate to the benzol absorption plant built by Edison at the works of the Woodward Iron Co. in Woodward, Alabama. The plant, which was jointly owned by Edison and the Japanese firm of Mitsui & Co., produced benzol, toluol, solvent naphtha, and naphthaline. The correspondents include engineer William H. Mason, who oversaw the construction of the plant; plant manager Claude H. Opdyke; and Mitsui executive Shunzo Takaki. Also included are communications involving Edison's son Charles, his personal business secretary Richard W. Kellow, and his personal assistant William H. Meadowcroft, who managed the inventor's chemical business.

Included are items pertaining to the shipment of chemicals to fulfill contracts with customers such as the Hercules Powder Co.; the transfer of chemical sales from Edison's personal office to Frederick D. Lockwood of Thomas A. Edison, Inc., in November 1916 and subsequently to Archibald C. Emery of New Jersey Products, Inc.; and the takeover of the plant in March 1918 by the Woodward Iron Co., according to Edison's original agreement with them. Other selected documents include daily reports from the beginning of production in the summer of 1915, bearing comments by Edison and Meadowcroft, as well as periodic financial statements showing Edison's and Mitsui's share of the profits in their joint venture.

Approximately 5 percent of the documents have been selected, including all substantive items relating to Edison's interests or involvement in the Woodward plant. The unselected material includes routine correspondence regarding shipping, routing, billing, accounting, drum return, and technical operations. Also not selected are rough financial notes, insurance statements, most daily production reports, production log books, and routine shipping papers.

THE WESTERN UNION TELEGRAPH COMPANY
INCORPORATED
25,000 OFFICES IN AMERICA. CABLE SERVICE TO ALL THE WORLD

The Company TRANSMITS and DELIVERS messages only on conditions limiting its liability, which have been accepted in by the sender of the following message. It is not to be received against until by repeating a message back to the sending station for acceptance, and the Company will not hold itself liable for errors or omissions in transmission or delivery of the transmitted messages, beyond the amount of value paid thereon, nor in any case beyond the amount of \$1000 Dollars, as which, unless otherwise stated below. This message has been accepted by the sender thereof, but in any case where the claim is not presented in writing within sixty days after the message is filed with the Company for transmission. This is a SPECIALIZED MESSAGE, and is delivered at request of the sender, under the conditions stated above.

THEO. N. HALL, PRESIDENT

BELVIDERE BROOKS, GENERAL MANAGER

SENT BY	BY	CHECK
SPM	Mo 20	
RECEIVED AT	W56	June 2 1912
DATED	Orange NJ 2:55 PM 2/9	
TO	W.A. Mason	Woodward

Do best you can to make early shipment for removal of carload or trucks on the way wire me when they arrive -
 Edison

Daily Report

June 18-15
8:20 a.m.

Edison Benzol Plant Woodward Ala

Light Oil made 1400 gal

See we get this daily
put on sheet & add
to it daily
E

Stock on hand

Crude	Washed	C.T
Light Oil 2500 gal	Heads 597 gal	Benzol 3200 gal
Heads 3700 "	Benzol 1863 "	
Benzol 2340 "	Toluol 2000 "	
Toluol 460 "		
Xylole & mpth 2330 "		

1800 gals in Badger No. 2.

700 " " " " No. 3.

2907 gallons of the above C.T. Benzol in drums and holding
until I get 30000 pounds gross as per message from Mr Rogers.

Hirzell Still No. 2 down & has changing 2" oil delivery pipe
to 3". Lost about 2 hours on Hirzell Still no water
Badger and exhausts ran all of the time

C. J. Payne

Daily Report

June 28-1915
8⁰⁰ am

Edison Benzol Plant Woodward Alas

Light Oils Made 1625 gal

704

Stock on hand

Crude		Washed		C-P
Light Oil	3275 gal	Heads	1100 gal	Benzol 4000 gal
Heads	6500 "	Benzol	981 "	
Benzol	375 "	Toluol	3503 "	
Toluol	270 "	Xylol	220 "	
Xylol	2500 "			

1200 gallons in Badger No 2

2300 gallons in Badger No 3.

Low steam about 5 hours

770 Edison
The difference in quantity of
Crude and Washed Benzol in this
& previous report shows me, that
I suppose it is accounted for
by the difference of 2000
gallons more in the
still on today's report
Meadowcroft

Rainy Report June 30-15
 Edison Benzol Plant Woodward Ala.

light oil made 1440 gals.

Stock on hand

Grade	Washed	C.P.
light oil 6585 gals	Heads 1100 gals	Benzol 5825
Heads 3800 "	Benzol 1670 "	
Redistilled Heads 1000 "	Toluol 3500 "	
Benzol 1100 "	Wash & Sol. Waste 600	
Toluol 700		
Wash & Sol. Waste 2100		

1200 gals Heads in Badger No 2
 800 . Washed Benzol . No 3

Hinges down 3 hours no water Powerhouse down
 Badgers " " " " " " " "

e. d. Dyke

Mr Edison Although I don't quite understand these reports as I don't, there is one thing quite evident, they show progressive accumulation of Benzol & Toluol
 Me too

Daily Report T. A. Edison Benzol Plant

Woodward, Ala.

Date July 3 1915

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 64%	1767	7168			
No. 1 Badger					
In Still					
Heads		4377	1300		
90% Benzol		1678	35		
90% Toluol		124	4600		
Sol. Naphtha		1080	600		
Redubbed Heads		1050			
Badger Still	No. 2 L.O.	No. 3 W.B.			
In Still	1300	2400			
Heads	150	10			
90% Benzol		477			7865
Com. Benzol	1300				
Pure Toluol					
Com. Toluol		310			
Pure Sol. Naphtha					

Both Highal stills down 1. hours no water
 " Badger " " 1 hours " "

He will soon have
 car load - tell him
 send 2 gal sample
 before shipping
 send by express
 not to get lost
 also recommend
 best to report

Daily Report T. A. Edison Benzol Plant

Woodward, Ala.

Mason
Note return
10/15/15

Date July 9 1915

	MADE TO-DAY		ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil %	11.00		12291			
No. 1 Badger						
In Still						
Heads			2300	1300		
99% Benzol			1823	3520		
90% Toluol			200	2000		
Sol. Naphtha			1200	600		
Redistilled heads			2200			
Badger Still	No. 2	No. 3				
In Still	2400	1600				
Heads	420					
99% Benzol						100
Com. Benzol	300	400			1700	
Pure Toluol						
Com. Toluol	50					
Pure Sol. Naphtha						

Both Hirschel stills down 5 hours (day) exhauster at work Jack Naphthalin on side of exhauster, washed out with hot water

Both Hirschel stills down 4 hours (night) no water, Rain storm, series to spring motor down

Both Badgers down 2 hours (night) no water

Encl. Address "Edison's New York"

From the Laboratory
of
Thomas A. Edison,

Orange, N.J. July 12th. 1915.

Mr. Claude Opdyke,
% Edison Benzol Plant,
Woodward Iron Company,
Woodward, Ala.

Dear Sir:

As soon as you refine some Solvent
Naphtha please ship one drum here to the Lab-
oratory, and be sure to mark it Solvent Naph-
tha. Please address it to Thomas A. Edison,
and not to the Incorporated. Mr. Edison says
to be careful that it is water white.

Yours very truly,

Wm. A. Meadowcroft
Assistant to Mr. Edison. *Wm. A. E.*

Dictated but
not read by
Mr. Meadowcroft.

Daily Report T. A. Edison Benzol Plant

Woodward, Ala.

Date July 14 1915

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 65%	1376	10002			
No. 1 Badger					
In Still	1200				
Heads		5076	1500		
90% Benzol	1167	4765	750		
90% Toluol	600	1400	2200		
Sol. Naphtha		1400	700		
Badger Still	No. 2	No. 3			
In Still	WB 2500	WB 1350			
Heads	150				
re Benzol				100	
Com. Benzol		727		2727	
Pure Toluol				1020	
Com. Toluol					
Pure Sol. Naphtha					

Low steam several times during day and night

Hinges down 2 hours no water

All Badgers down 3 hrs changing 1/2" water line to storage tank to 2"

No. 2 Badger down 3 hours changing piping

Recharged No. 3 Badger with washed benzol after running, toluol

Have not been able to get this still to make pure benzol so far on this charge

2 samples taken from washed benzol tank ran

79.1 at 5 cc - 81.1 at 3 cc 82.1 at 5 cc 97.1 at 9 cc

79.1 at 10 cc 82.2 at 4 cc 82.2 at 7 cc 100 at 9.3 cc

80.3 at 20 cc 82.2 at 5 cc 93.1 at 2 cc 101.1 at 9.5 cc

[ATTACHMENT/ENCLOSURE]

C1916P3

Daily Report T. A. Edison Benzol Plant

Woodward, Ala.

Date July 15 1916

	MADE TO-DAY	ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 45%	695	5524			
No. 1 Badger					
In Still	512 ⁵ ₃				
Heads	200	5285	1500		
90% Benzol		3100	2361		
90% Toluol		1400	2200		
Sol. Naphtha	180	1580	700		
Wash Oil Naphthalene	900				
Badger Still	No. 2	No. 3			
In Still	W.B. 2400	W.B. 1450			
Heads					
Com. Benzol				100	
Com. Benzol	100	100		2927	
Pure Toluol				1020	
Com. Toluol					
Pure Sol. Naphtha					

Both Higgs down 14 hours
 Exhauster 1st tank full of Naphthalene, down 5 hours
 Wiped hoses in 20 inch gas main to our exhauster found
 it over 1/2 full of naphthalene. Woodward people put a return
 connection to main and we blew out main exhauster down
 9 hours. Have arranged with Woodward people to put in a
 good big out let for Naphthalene when they connect their
 gas main to ours, and then when we blow out main
 it will only take 1 or 2 hours.
 All Badgers down 1 hour no water
 Bypassed No 2 and 3. 8 hours trying to get them to run
 pure benzol

[ATTACHMENT/ENCLOSURE]

Mason —

This is getting serious
+ needs your immediate
attention

~~Handwritten~~ Edison
found out by phone
from Mason House
where he is —
Σ

Call Address:
Mitsui, N.Y.

Telephone 10000, Anderson Square

MITSUMI & CO. LIMITED.
(Mitsui Bussan Kaisha, Ltd.)

TOKIO	MIKI	OTARU	DALNY	MOURDEN	LONDON
YOKOHAMA	WAKAMATSU	SAPPORO	TIELING	SEOUL	HAMBURG
YOKOSUKA	KARATSU	TAIPEH	TIENTSIN	CHEMULPO	LYON
KOBE	KURE	TAIHAN	CHEFOO	ANTWERP	NEW YORK
OSAKA	KISHIMA	CANTON	HANKOW	KWANGCHINGU	DALLAS
NAGASAKI	SASEBO	HONG KONG	SWATOW	BANGKOK	SAN FRANCISCO
MOJI	HAIZURU	SHANGHAI	AMOI	RANGOON	PORTLAND
NAGOYA	MUROHARU	NEWCHWANG	FOCHOW	SOURABAYA	MANILA
KUCHINOTSU	AWOMORI	CHOSHUN	TSINGTAU	CALCUTTA	BOMBAY
NIIGATA	MIYAGI	HARBIN	PEKING	SYDNEY	SINGAPORE
TSURUGA	SUNAGAWA	VLADIVOSTOK	GIRIN		

25, Madison Avenue

New York, July 19th, 1915
Send this to Mr Mason at
The Woodward plant

Mr. Thomas A. Edison,
Orange, New Jersey.

Dear Sir:--
Attention of Mr. W. A. Meadowcroft.
Supplementary to our letter of June 4th in which we ask you to forward sample of each shipment of Toluol under our contract with The Hercules Powder Company, we are now in receipt of a letter from them requesting us to number these samples as follows, before sending them to Eastern Laboratory of the E. I duPont deNemours Powder Co., Chester, Pa. as requested "MITSUI SAMPLE NO.1"
the next number two, etc.

We would request that you kindly instruct your people down in Alabama to comply with this request. Thanking you in advance for your prompt attention to this matter,

Yours very truly,

Shimzo Takaki

Mason be sure Takaki passes the Nobel or
Portial govt test. This is for the
Carbons to be shipped July 15th

SH/LM

Daily Report T. A. Edison Benzol Plant

Woodward, Ala.

Date July 20, 1915

	MADE TO-DAY		ON HAND CRUDE	ON HAND WASHED	ON HAND PURE	SHIPPED
Light Oil 54%	1527		6200			
No. 1 Badger						
In Still	2600					
Heads			5700	1500		
90% Benzol	1420		3160	4765		
90% Toluol				2200		
Sol. Naphtha	5547		1750	700		
			16810	9165		
Badger Still	No. 2	No. 3				
In Still	1600	400				
Heads						
re Benzol					100	
Com. Benzol	1200	800			7700	
Pure Toluol					1020	
Com. Toluol	2800	1200				
Pure Sol. Naphtha					8820	

M. Edison
This looks pretty bad.
It does not seem as if we
were making any progress.
Mcawmoff

2800
 1200
 5547
 16810
 9165
 8820

 44342

NIGHT LETTER**THE WESTERN UNION TELEGRAPH COMPANY**

25,000 OFFICES IN AMERICA

INCORPORATED

CABLE SERVICE TO ALL THE WORLD

THEO. N. VAIL, PRESIDENT

BELVIDERE BROOKS, GENERAL MANAGER

RECEIVER'S NO.

TIME

CHECK

SEND following NIGHT LETTER subject to the terms on back hereof which are hereby agreed to

My orange of 6/11-1915

C. H. Payne who Woodward Ala
 Your telegram recd can you say
 how soon after Sept first you
 could promise the remaining
 eleven hundred gallons for
 tomal for Whitani.

Thos A Edison

THE WESTERN UNION TELEGRAPH COMPANY

INCORPORATED
25,000 OFFICES IN AMERICA. CABLE SERVICE TO ALL THE WORLD

This Company TRANSMITS and DELIVERS messages only on conditions limiting the liability, which have been asserted to by the sender of the following message. There can be no guarantee as to the accuracy of the receiving station for reception, and the Company will not hold itself liable for errors or omissions in transmission or delivery of Unrepeated Messages, beyond the amount of tolls paid thereon, nor in any case beyond the sum of Fifty Dollars, at which time there is no refund. This message has been received by the sender or carrier, or in any case where the same is not provided in writing, within a fair and reasonable time after the message is filed with the Company for transmission. This is an UNREPEATED MESSAGE, and is delivered by request of the sender, under the conditions stated above.

T. W. WALKER, PRESIDENT

BELVIDERE BROOKS, GENERAL MANAGER

NUMBER 1030 SENT BY 1030/17 CHECK

RECEIVED AT 1030 Sept 8 1915

DATED Orange N.J. 107.5-8

TO Edison Electric Works Plant

1080 Woodward Ave.

Get car loaded ready for shipment

to Hercules but do not actually

ship same until further notified

J. A. Edison

Form 2592

[Sept 10]

DAY LETTER

THE WESTERN UNION TELEGRAPH COMPANY

25,000 OFFICES IN AMERICA

INCORPORATED

CABLE SERVICE TO ALL THE WORLD

SELVIDERE BROOKS, GENERAL MANAGER

THEO. N. VAIL, PRESIDENT

RECEIVER'S No.

4372 31 Blue

CHECK

FILE EARLY TO ENSURE DELIVERY DURING THE DAY

SEND the following DAY LETTER subject to the terms on back hereof which are hereby agreed to

19 Orange St - 10 1915

To Claude Hopkins - Edison Dept Plant

Woodward Ala.

How much refined naphthalene have you ready for shipment at can be packed in ordinary barrels at what rate are you refining & desire accurate information in order to make contract.

Thos A Edison

POSTAL TELEGRAPH - COMMERCIAL CABLES

RECEIVED AT MAIN OFFICE
BROWN-MARX BUILDING
BIRMINGHAM, ALA.
TELEPHONE, MAIN 7400

CLARENCE H. MACKAY, PRESIDENT

TELEGRAM

DELIVERY NO.

1217

The Postal Telegraph-Cable Company (Incorporated) transmits and delivers this message subject to the terms and conditions printed on the back of this blank.

100-18017

DESIGN PATENT NO. 40029

bl19kx t 25 254 pm

Orange N J Oct 1 1915

Claude H Opdyke

Care Woodward Iron, Woodward Ala

Very important we get some sublimed naphthaline up here as quick as possible how much have you and how quick can you ship Answer quick.

Thos A Edison.

TELEGRAM TELEPHONES

30

2

C. H. Opdyke

Call Address
Miami, N.Y.

MIITSUI & CO. LIMITED.
(Mitsui Bussan Kaisha, Ltd.)

Telephone 10000, Madison Avenue.

TOBIO	MIKE	OTARU	DALNY	MOUKDEN	LONDON
YOKOHAMA	WAKAHATSU	SAPPORO	TIELING	SEKUL	HAMBURG
YOKOSUKA	KARATSU	TAIPEH	TIENTSIN	CHEMULO	LYON
Kobe	KURE	TAINAN	CHEFOO	ANTOKKEN	PETROGRAD
OSAKA	HISHIMA	CANTON	HANKOW	KWANGCHINTU	DALLAS
NAGASAKI	SASEBO	HONG KONG	SWATOW	BANGKOK	SAN FRANCISCO
HOJI	MAIZURU	SHANGHAI	AMOI	RANGOON	PORTLAND
MAGOWA	MUROGAN	HEWCHWANG	FOOCHOW	SOORABAIA	MANILA
KUCHINOTSU	AWOMORI	CHOSHUN	TSINGTAU	CALCUTTA	BOMBAY
NIIGATA	MIYAKO	HARBIN	PEKING	SYDNEY	SINGAPORE
TSURUGA	SUNAGAWA	VLADIVOSTOK	GIRIN		

25 Madison Avenue,
New York, November 8, 1915

Mr. Opdyke,
Thomas A. Edison Benzol Plant,
Woodward, Ala.

Dear Sir:-

I am in receipt of four copies of your daily report dated October 31st to November 3rd, in which I found that there has been no increase in the quantity of pure Toluol in these four days, but only an increase of 900 gallons of stock of Crude Toluol,

I became worried, and sent you a telegram direct and asked you if you were sure of sending a second tank car on the first of December. There is a big possibility of the Hercules People suing us for the shortage of toluol and if they do so we shall suffer from considerable loss instead of making any profit on the whole plant.

We request you to bear this in your mind, and make Toluol as fast as you possible can.

No doubt you will hear from Mr. Edison to the same effect.

Thanking you in advance for your close attention to this matter, and with regards,

Yours very truly,

Shunzo Takagi

ST:VC

WESTERN UNION TELEGRAM

Form 100

GEORGE W. E. ATKINS, VICE-PRESIDENT		NEWCOMB CARLTON, PRESIDENT	DELVIDERE BROOKS, VICE-PRESIDENT
RECEIVER'S No.	TIME FILED	CHECK	

SEND the following Telegram, subject to the terms on back hereof, which are hereby agreed to

January 28th. 1916.

C. H. Opdyke,
Woodward Iron Co.,
Woodward, Ala.

We want one carload of good white Naphthaline shipped to American Oil & Supply Company. Your samples have not arrived, but if carload is as good as made in small Sublimor ship at once.

E. H. MRSOH.

WESTERN UNION DAY LETTER

Form 2

GEORGE W. E. ATKINS, VICE-PRESIDENT NEWCOMB CARLTON, PRESIDENT BELVIDERE BROOKS, VICE-PRESIDENT

RECEIVER'S NO.	TIME FILED	CHECK
----------------	------------	-------

SEND the following Day Letter, subject to the terms
on back hereof, which are hereby agreed to

Feb. 11th, 1916. 191

To Claude H. Opdyke, Woodward Iron Company, Woodward, Ala.
We are in awful trouble about car of Naphthaline
received few days ago. Bottoms and heads of over fifty
barrels dropped out, and others were in very bad condition.
Transportation company absolutely refused to receive them
for reshipment and our customer compelled to rebarrel.
Transportation company notify us formally that they will
will not accept Naphthaline except in barrels of seasoned
wood, smooth like sugar barrels.

L. H. ME. DORCROFT.

SENDER'S ADDRESS
FOR ANSWER

SENDER'S TELE-
PHONE NUMBER

WESTERN UNION



DAY LETTER

GEORGE W. E. ATKINS, VICE-PRESIDENT NEWCOMB CARLTON, PRESIDENT BELVIDERE BROOKS, VICE-PRESIDENT

RECEIVER'S No.	TIME FILED	CHECK
----------------	------------	-------

SEND the following Day Letter, subject to the terms on back hereof, which are hereby agreed to February 21st, 1916. 191

To C. C. Updyke, Woodward Iron Company, Woodward, Mo.

How much Sulphuric acid do you use per day?

Please tell Mr. Bunister that Mr. Wilson would be glad

to know what he buys steel cities Chemical Company for

66° Baume Sulphuric on contract. Wire reply to both

questions.

T. H. MURPHY-CROFT.

SENDER'S ADDRESS
FOR ANSWER

SENDER'S TELE-
PHONE NUMBER

Circle 4 Address
Mitsui, N.Y.

MIITSUI & CO. LIMITED.
(Mitsui Bussan Kaisha, Ltd.)

Telephone 10000, Madison Square

TOKIO
YOKOHAMA
YOKOSUKA
KOBE
OSAKA
NAGASAKI
MOJJI
NAGOYA
KUCHINOTSU
NIIGATA
TSURUGA

MIYAKE
YAMAGUCHI
KARATSU
KURE
KISHIDA
SASEBO
HAIZURU
MURORAN
AWOMORI
MIYAKO
SURAGAWA

OTARU
SAFFORD
TAIPEH
TAINAN
CANTON
HONG KONG
SHANGHAI
NEWCHANG
CHOSHUN
HARBIN
VLADIVSTOK

DALNY
TIELING
TIENTSIN
CHEFOO
HANKOW
SWATOW
AMOI
FOOCHOW
TSINGTAU
PEKING
SIRIK

MURDEN
SEOUL
CHEMULPO
ANTOHEH
KWANGSHEU
BANGKOK
BANGKOK
SOURABIA
CALCUTTA
SYDNEY

LONDON
HAMBURG
LYON
PETROGRAD
DALLAS
SAN FRANCISCO
PORTLAND
HANKA
BOMBAY
SINGAPORE

25 Madison Avenue,

New York, February 24, 1916.

Thos. A. Edison, Esq.,
Orange, N. J.

Dear Sir:-

Attention of Messrs. W. H. Meadowcroft and
F. H. Miller.

We take the pleasure in enclosing herewith statement of account of Woodward Plant up to the end of 1915 which needs a little explanation.

- 1.- According to our original agreement, Mitsui & Co. are entitled to recover 40% of the construction expenses, and therefore for six months (July 1915 to December 1916) we deducted 20% which is \$13,860.93.
- 2.- Running expenses are as per the expenses which we paid according to your statements.
- 3.- Miscellaneous expense covers all the incidental expenses such as small commissions paid to Col. Davis and his friend, cost of drums, freight thereof, etc.
- 4.- We only shipped two tank cars of C.P.Toluol for which we had to pay commission to Dr. Stillwell and Takamine Laboratory (12¢ per gallon.).
- 5.- Benzol.- The total amount of the payment which you made us before December 31, 1915 amounted to \$41,056.71, but the plant

shipped in addition to the above, a large quantity of Benzol for which you made us the payment of \$30,502.94 early in January, and for the sake of convenience we credited the same in this statement and will not have this income in the next statement.

6.- We agreed to sell you pure Benzol which went into the manufacturing of Phenol under our first contract, allowance of 20¢ per gallon, and therefore this item amounting to \$5,419.80 was debited in this statement.

7.- On the same Phenol contract our Mr. Takaki verbally agreed with you that he will see that Woodward Plant will get \$1.00 for each gallon of Benzol which went into the making of Phenol under the said contract, and this rebate amounted to \$16,259.40 on the 31st of December 1915 and therefore we credited this sum in this statement.

8.- We received from you for naphthaline the sum of \$91.73 in 1915, but you shipped a great deal more in December 1915 for which you paid us \$2,761.67 in January 1916 which we credited in this statement for the sake of convenience.

9.- Solvent Naptha. We credited the amount received in December 1915 in this statement.

Summarizing this account, we are pleased to say that we are ready to send you a check for \$28,931.96 which will be a clean profit for your share. Of course we want to recover our construction expenses as fast as possible, but we refrain from asking you to do so because our original agreement called for 40% during the first year. In a few words, this statement means that we just recovered the entire cost of the construction

and paid off all the expenses up to the end of 1915, and whatever net profit we make will be our net income, and since we have already sold all the products up to the end of 1916, we ought to be making altogether at least \$200,000. net profit to be divided equally.

We thank you for the opportunity you gave us in making this nice profit and ask you to bear us always in your mind when you get something new and good.

Kindly instruct your Mr. Miller to notify us if he is ready to receive our check.

With kindest regards,

Very truly yours,

A handwritten signature in cursive script, appearing to read "George T. Davis". The signature is written in dark ink and is positioned above a horizontal line.

ST/KN.

[ATTACHMENT/ENCLOSURE]

STATEMENT ACCOUNT

of

Woodward Plant during the Year 1915.

Depreciation.

20% of Construction Expense, \$69,304.65,	\$13,860.93 ✓
Running Expenses to the end of December,	45,288.51 ✓
Miscellaneous Expense,	4,270.31

Net Proceeds from the Sale of Products.

<u>Toluol.</u> - \$35,590.68	
Less Comm. 1,959.18	\$33,631.58 ✓

Benzol.-

Total receipt during 1915,	\$45,056.71	
Shipment made during 1915 for which payment received in January 1916,	30,502.94	\$75,872.65 ✓
Allowance of 20% per gal. on Benzol used for manufacturing Phenol shipped to Japan.	\$9,532.80	✓
Rebate from Mitsui & Co., Ltd on first Phenol contract to make price of Benzol \$1.00 per gallon, (47,664 gal. @ \$1.00 - 40= 60)		28,598.40 ✓

Naphthaline.-

Total receipt during 1915,	901.73	
Shipment made during 1915 for which payment received in January 1916,	2,761.67	\$,663.40 ✓

Solvent Naphtha.-

	1,589.45 ✓
\$72,932.55	\$143,135.46
70,202.91	
<u>\$143,135.46</u>	<u>\$143,135.46</u>

1/2 Profit due you, \$35,101.48.

Stamps & Co.
 1915

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	DL
Night Message	NM
Night Letter	NL

If none of these three symbols appears after the check number of words in the day message, otherwise the character is indicated by the symbol appearing after the check.

WESTERN UNION



TELEGRAM

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	DL
Night Message	NM
Night Letter	NL

If none of these three symbols appears after the check number of words in the day message, otherwise the character is indicated by the symbol appearing after the check.

GEORGE W. E. ATKINS, VICE-PRESIDENT SELVIDERE BROOKS, VICE-PRESIDENT

RECEIVED AT 3pm Feb 29 1914

NUMBER	RECEIVED BY	CHECK
<u>57pm</u>	<u>ms</u>	<u>27</u>

DATED Orange NJ - 3/29

TO Claude apdyke Woodward Ave

Mr Edison desires of having

your daily reports each day

instead of two or three

at a time can you do it

Wm McAndrews

Call address "Edison, New York"

From the Laboratory
Thomas A. Edison,

Orange, N.J. March 29th. 1916.

Mr. Claude H. Opdyke,
Woodward Iron Company,
Woodward, Ala.

Dear Mr. Opdyke:

As you are aware, we have sold all our Naphthaline Flakes thus far to the American Oil & Supply Company. I am not sure whether I have sent you the latest list of these sales, but in order to be certain will send it now. Here it is up to date:

1	carload	to be shipped	February 9th	-	9 1/2¢			
1	"	"	"	"	24th	-	10¢	
1	"	"	"	"	March 10th	-	11¢	
1	"	"	"	"	"	25th	-	11¢
1	"	"	"	"	April 10th	-	11 1/4¢	
1	"	"	"	"	"	25th	-	11 1/4¢
1	"	"	"	"	May delivery	-	11 3/4¢	

The American Oil & Supply Company wanted us to sell a second car in May, but Mr. Edison was not sure whether we could make it sufficiently fast enough when the warm weather sets in, and did not contract for the second car but promised to let them have it if we made it. Price 11 3/4¢.

For your information I want to repeat the shipping instructions we have received from the American Oil & Supply Company. In another letter I am giving you very elaborate shipping instructions from them for the first April shipment. As to the second April shipment and the May shipment, they say that it is to be consigned to the American Oil & Supply Company at New York, provided the railroads will take it for New York delivery, and if not, to be consigned to them at Newark. They say that whether the shipments are consigned to them at New York or Newark, the bill of lading should be marked "Notify American Oil & Supply Co. at Newark".

Yours very truly,

W. H. Lee
Assistant to Mr. Edison.

Call Address "Edison's New York"

From the Laboratory
of
Thomas A. Edison,

Orange, N.J. April 17th. 1916.

Mr. Claude H. Opdyke,
The Edison Benzol Plant,
Woodward Iron Company,
Woodward, Ala.

Dear Mr. Opdyke:

Will you kindly send me a statement showing how many gallons you have shipped of Benzol, Toluol and Solvant Naphtha since the plant started up to the date of your last shipment. All I want is the grand total of each one, nothing in detail. Please also state the date of the first shipment and of the last shipment. If possible I would like to have you get this off to me by the end of the week. Mr. Edison wants these figures.

Yours very truly,

W. H. Woodward
Assistant to Mr. Edison.

P.S. Please also give me the same information for Sublimed Naphthaline.

Callers Address
Mitsui, N.Y.

MIITSUI & CO., LIMITED.

(Mitsui Bussan Kaisha, Ltd.)

Telephone 10014, 10015, 10016
AUG 18 1916

TOKIO
YOKOHAMA
YOKOSUKA
KOBE
OSAKA
NAGASAKI
MOI
NAGOYA
KUCHINDOZY
NIIGATA
TSURUGA

MIKI
WAKAMATSU
HARATSU
KURE
KISHIMA
SABERO
MAZURU
MURORAN
AWGORI
HIYAKO
SUNAGAWA

OTARU
SAPPORO
TAIPEH
TAINAN
CANTON
HONG KONG
SHANGHAI
NEWCHWANG
CHOSHUN
HARBIN
VLADIVOSTOK

DALNY
TIELING
TIENTSIN
CHEFOO
HANKOW
SWATOW
AHY
FOOCHOW
TSINGTAU
PERING
GIRIN

MOUKDEN
SEOUL
CHEMULPO
ANTOIKEN
KWANGHINTU
SANGHOK
BANGOOH
SOURABAIA
CALCUTTA
SYREY

AUG 18 1916
LONDON
BRUSSELS
PETROGRAD
DALLAS
SAN FRANCISCO
PORTLAND
MANILA
BOMBAY
SINGAPORE

25 Madison Avenue,
New York, August 17th, 1916.

Mr. Thomas A. Edison,
Edison Laboratory,
Orange, N. J.

Attention of Mr. W. H. Meadowcroft.

Dear Sir:

I take pleasure in enclosing herein statement of account of the Woodward Plant for the period of January 1, 1916, to June 30th, 1916, which shows a gross profit of \$120,428.76 from which I have deducted 20% of the construction expense, which will leave a net profit of \$106,565.83. I also enclose our check for \$53,282.92, which is your half of the net profit.

There is nothing to explain except a small item which is a miscellaneous expense for \$2750. This sum I have spent in order to settle troubles with the Hercules Powder Co. and includes the remuneration which we paid to Mr. H. B. Mingle our lawyer. I really believe that the amicable settlement with the Hercules Powder Company on the Toluol contract was absolutely due to Mr. Mingle's efforts. I paid him \$2500, and I wish you would have no objection of the same.

54-217-21
AUG 18 1916

-2-

Just for your reference, I might mention that in the six months, each of us made a net profit of \$35,101.46, and therefore at the end of the twelve months, it means that we have made approximately \$88,400, and we ought to make a net profit of \$60,000 for the six months ending in December 1918.

Trusting that this statement is satisfactory to you, and with kind personal regards,

Yours very truly,

Shunzo Sakaki
per Mitsumasa

ST/DK

STATEMENT OF ACCOUNT

OF

Woodward Plant During the Period of January 1, 1916
to June 30th, 1916.

Running Expense during the period \$74,525.81

Miscellaneous Expense 2,750. ✓

Net Proceeds from the Sale of Products

Toluol.-

Less Comm. ° \$53,443.79 - 5% (5/11) ° \$50,499.41 X

Benzol.-

Total Receipt ° \$130,908
Freight ° 4,336.07 ✓ 186,571.83 ✓

Allowance of 20¢ per gallon on Benzol used for manufacturing Phenol shipped to Japan

3,278.20 ✓

Rebate from Mitsui & Co. Ltd. on First Phenol Contract to make price of Benzol \$1.00 per Gal.

3,252. ✓

Naphthaline.

19,764.10 ✓

Solvent Naphtha

893.33 ✓

Gross Profit

120,426.76

200,980.77 200,980.77

120,426.76

Redemption of 20% of Construction Expense \$89,304.65

13,860.93

Net Profit during the season ----- 106,565.83

1/2 Profit Due You \$53,282.93 ✓

Construction Expense to be redeemed \$41,582.79

Shunzo Takai

Wtd

[ATTACHMENT ENCLOSURE]

12
1330065-
611162
1021737
1076210
35172

122496.2
120426.76
20679.96
103498

Call Address "Edison's New York."

*From the Laboratory
of
Thomas A. Edison,*

Orange, N.J. September 7th. 1916.

Mr. C. H. Opdyke,
% Woodward Iron Company,
Woodward, Ala.

Dear Claude:

The price of Naphthaline has been falling pretty steadily and the market is very weak, in fact a few days ago there was prime Naphthaline offered at 7¢ with no takers. In view of this it is necessary for us to figure pretty closely on our costs of production so we will know just where we stand and what price we can afford to sell. I wish you would go over this matter and give me as close an estimate as possible on the cost of making your pure white, double sublimed Naphthaline loaded in barrels on the cars, per pound. In doing this I think it advisable to discuss the matter with the Woodward people as we feel inclined if possible to do so, to close a contract for some six months or a year if possible at a point somewhat below the market if necessary, so that we can feel assured of our shipments from this time on. We also want to know what ^{amount} you estimate you can turn out of the white, double sublimed material.

Of course, this Naphthaline practically costs us nothing except the subliming charges and what we pay the Woodward Company. I would like you to give me this information as soon as possible.

Yours very truly,

W. A. Mason

Call Address "Edison, New York"

From the Laboratory
of
Thomas A. Edison.

Orange, N.J. November 14, 1916.

Mr. Claude Opdyke,
c/o Woodward Iron Co.,
Woodward, Ala.

My dear Mr. Opdyke:

I suppose by this time you may have heard from other sources that the sales of our various chemicals will now be conducted by Mr. Emery the head of the Purchasing Department here, in combination with his Assistant, Mr. F. D. Lockwood. Their orders for Naphthaline you can take from them just as you use to take from me.

So far as I know, the Benzol and Toluol will be handled by Mitsui & Co., and probably the Solvent Naphtha may be handled by Mr. Emery or Mr. Lockwood.

Yours very truly,

H. H. Woodcock

Assistant to Mr. Edison.

#4002

REFERRING TO FINANCIAL EXECUTIVE'S MEMORANDUM NO. 4002

DIVISION OR SECTION— Edison Benzol Plant
DATE— Nov. 20, 1916.
SUBJECT— Organization and adoption of Sales Policy
RESULT WANTED BY— Effective November 1, 1916.
PLEASE COOPERATE WITH— Purchasing Service Dept. for Chemical Sales Dept.

TO—
Mr. C. E. Opldyke, Supt.,
Edison Benzol Plant,
C/o Woodward Iron Co.,
Woodward, Alabama:

Enclosed is a copy of Financial Executive's Memorandum #4002, dated October 30, 1914, with reference to new sales policy and the organization of a chemical sales division to handle the sales of chemicals for Mr. Edison's various interests. This is sent to you merely for your information.

Secretarial Service Dept. of
Personal Interests of T.A. Edison.

H. W. Keller,
H. W. Keller
Secretary.

LH

Messrs. Chas. Edison and W. H. Meadowcroft.

COPIES TO—

COPIES OF THIS REPLY SHOULD BE SENT TO ALL PARTIES RECEIVING THE ORIGINAL, INCLUDING TWO COPIES TO THE FINANCIAL EXECUTIVE'S OFFICE

FORM 1278—1020-10

[ATTACHMENT/ENCLOSURE]

Form 1203.

FINANCIAL EXECUTIVE'S MEMORANDUM NO. 4443

DIVISION IN QUESTION - Edison Benzol Plant.

DATE - Oct. 30, 1916.

SUBJECT - Organization - Adoption of Sales Policy.

RESULT WANTED BY - Effective November 1, 1916.

PLEASE CO-OPERATE WITH - Purchasing Service Department for Chemical Sales Dep't.

Mr. C. H. Opdyke, Supt.,
Edison Benzol Plant,
Woodward, Ala.

Inasmuch as practically all of the contracts of sale for the products of the Aniline Plant and the Phenol Plant of Personal Interests of T. A. E., expire with the advent of the new year, it is Mr. Edison's desire that a very vigorous campaign be inaugurated looking to the sale of these products directly to consumers instead of handling them through brokers to the very large extent which has been the policy in the past.

With reference to the products of the Amidophenol and the Benzidine Plants of Personal Interest of T. A. E., it is recognized that continuing contracts exist which call for practically the present capacity of these Plants, but this capacity is susceptible of increase and any additional quantities which we can manufacture over and above existing contracts, should be sold directly to consumers.

This program is made necessary by the fact that we must meet competition and to do this we, of course, must forecast our purchases of raw material a long time in advance, on a definite basis and with a definite knowledge of our actual requirements for all of the coming year and for a longer period ahead if possible, in order that the continuance of these Plants may give us as long a period of time as possible over which to wipe out the investment which we have made therein.

It is thought that inasmuch as we are very large buyers of acids and chemicals, it would be well to combine the operation of buying and selling these products, under the same general supervision because through the medium of purchasing more or less intimate relations are created and this should work to the decided advantage of our selling propositions, in that the people from whom we purchase raw materials will be keen to stimulate such purchases by conveying trade information which it is believed will be of great value.

Therefore, it is Mr. Edison's desire that effective November 1, 1916, the responsibility for sales of products of the Personal Plants, be placed under the direction of Mr. F. D. Lockwood as the Sales Manager, under the control and subject to the supervision of the Purchasing Agent, Mr. A. C. Emery.

Mr. Edison desires at this time to publicly express his appreciation of the thorough and successful manner in which our complex problems have been handled by his assistant, Mr. W. H. Meadowcroft, and it is hoped that the foregoing arrangement will result in Mr. Meadowcroft being relieved of all the heavy burden of detail which this involves so as to leave Mr. Meadowcroft available for other important work for Mr. Edison.

RESULT ACCEPTED _____ 191 _____

COPIES TO - Messrs. Chas. Edison, W.H. Meadowcroft,

PLEASE USE FORM 1276 FOR ALL CORRESPONDENCE RELATIVE TO THIS MEMORANDUM.

ORIGINAL.

[ATTACHMENT/ENCLOSURE]

5/12

-2-

All officers and employees of the Edison Organization are requested to co-operate with Messrs. Emery and Lockwood to the fullest extent possible, looking to the successful carrying out of the program herein outlined. On November 1, 1916, all contracts or agreements of sale shall not be considered binding until they bear the approval of Mr. Edison, or of the undersigned.

.....

S. E. Mamberi,
S. E. Mamberi
Vice President and
Financial Executive.

ALL CONTRACTS SUBJECT TO STRIKES, ACCIDENTS AND CAUSES BEYOND OUR CONTROL
ADDRESS ALL BUSINESS COMMUNICATIONS TO THE COMPANY AND NOT TO THE OFFICERS OR EMPLOYEES

A. H. WOODWARD
CHAIRMAN

D. C. WILSON
TREASURER

HERBERT E. SMITH
SECRETARY

J. H. WOODWARD
PRESIDENT

R. H. DANIELS
VICE PRESIDENT

WOODWARD IRON COMPANY

WOODWARD, ALA. April 4, 1917.

Thomas A. Edison,
Attention: Mr. E. W. Kellow, Secty.,
Orange, N. J.

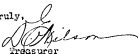
Gentlemen:-

On March 9th we mailed you statement of account of
Thomas A. Edison to March 1st, amounting to \$22,211.74, with
request that you advise us at what time we may expect settlement.
We have heard nothing from you and are at a loss to understand
why some action has not been taken in regard to settlement. If
there is any reason why the account should not be paid we will
appreciate it if you will kindly advise us.

If our accounts are not presented in the manner in which
you wish them please advise us, wherein we will have them changed.
You can readily understand that your account on our books now
appears as long past due and naturally creates the impression that
we are not looking after our collections properly and that you are
not giving the account the proper attention. We also beg to call
your attention to the fact that a number of these charges represent
actual cash paid by us for labor employed at your plant and we must
insist that the matter be given attention which it deserves.

Awaiting your reply, we are,

Yours truly,


D. C. Wilson
Treasurer

den-2

SECRETARIAL SERVICE DEPARTMENT OF THOMAS A. EDISON, PERSONAL.

Memorandum No. 260

DIVISION: Edison Bensch Plant, Woodward, Ala.

SUBJECT: Bond

Date Apr. 25, 1917

Mr. C. H. Opdyke, Supt.,
Edison Bensch Plant,
Woodward, Ala.

It is Mr. Edison's policy to have all persons who handle money bonded and this matter has been taken care of so far as the people located at Orange are concerned.

I am enclosing herewith an application for bond which I will be glad if you will kindly fill out and return to us so that I may have you included among the rest of us.

Thanking you for your prompt attention, I am

R. W. BELLON
RWB
Secretary.

RWB/JL

CORRECTED STATEMENT

Period of July 1, 1916 to December 31, 1916

ORANGE, N. J., April 30th, 1917.

Mitsui & Company, Ltd.,

25 Madison Avenue, New York City.

TO THOMAS A. EDISON, DR.
EDISON BENZOL PLANT, WOODWARD, ALABAMA.

Reserve for freight
to be accounted for
in June 26 Statement

Net proceeds from sales as follows:			
Toluol - 19344 gallons	3000 @ 1.70 net	50103 92	
1/25/17 4300 "	20644 @ 2.18	24777 28	\$47626 64 ✓
Less commission 12½ per gallon	<i>Chas. E. Jackson & Co. by W.H. Mackintosh</i>		
Benzol - 188638 gallons @ 60¢		115182 80	
Less freight paid	2275.10		
" reserve for freight unpaid	3000.00	5275 10	107907 70 ✓
Naphthaline - 20046 lbs @ 5½¢	1102.53		
35967 " @ 6½¢	2337.86		
35139 " @ 7½¢	2710.41	5150 80	
Less allowances for poor material	3217.82		
" reserve for freight unpaid	290.00		
" freight paid	468.32		
" difference on period			
1/1/16 to 7/1/16 as per Mitsui & Co's letter 10/9/16	351.78	4327 92	1822 88
Solvent Naptha - 5725 gallons @ 25¢		1431 25	
Less freight	101.30		
" discount	14.31	115 61	1315 64 ✓
Additional for sales period ending July 1, 1916 as per Mitsui & Co's letter 10/9/16			945.52 ✓
Total proceeds from sales			159616 38
Operating expenses during period			5867 44
Gross profit			100998 94
Redemption of 17½% Construction Expenses (\$69304.65)			12128 32
Net profit for period			88870 62
1/2 net profit Mitsui & Co.		44435 31	
1/2 net profit Thomas A. Edison		44435 31	
T.A.E. profit for period as shown by previous statement			45371 11
Corrected portion as above			44435 31
Due Mitsui & Co. as revised			\$ 935 80

SECRETARIAL SERVICE DEPARTMENT OF THOMAS A. EDISON, PERSONAL.

Memorandum no. 122

SUBJECT:

Date May 7, 1917.

Mr. C. H. Opyke, Supt.,
Woodward, Alabama:

We beg to acknowledge receipt of yours of the 3rd, enclosing daily labor statement covering labor at the Woodward Plant for the month of April, showing a total expenditure on this account of \$1427.32. We are returning these statements to you, as you will possibly need them for your records, but we have taken the amount of money covering same and figure the average daily man labor to be 16 men. It will not be necessary to send these reports in in this shape, as all we require is the average men employed, together with the money spent. The Statistical Department will then take the number of men into the money and get a general average which will give them the information they desire.

One thing we notice in this list: They have two reports dated April 30th, one list showing \$45.59 chargeable to Mr. Edison and \$13.15 to the Woodward Iron Company, the other list showing just the opposite, or \$45.59 against the Woodward Iron Company and \$13.15 to Mr. Edison. We did not just understand this, and wish to bring to your attention, and if you can explain, kindly do so.

For your information in handling this we will state that on March 31st the Woodward Iron Company rendered us bill covering labor \$1465.52. All you would have to do in this instance would be to have the Woodward Iron Company insert on this bill the average number of men which you could furnish them, which together with the money would be the information that we require. You need not however, go back to March 31st, but we would thank you to get this information as of April and verify our figures as to the money and also the number of men which we figure to be 16. If you will kindly furnish this by early mail, we shall appreciate your efforts. We have not however, received the bill for April from the Woodward Iron Company as yet.

R. W. Kellow,
R. W. Kellow
Secretary.

LAS/MH

THOMAS A. EDISON

ORANGE, N. J. May 31, 1917.

Mr. C. H. Opdyke, Supt.,
Edison Benzol Plant,
Woodward, Alabama.

Dear Sir:

We have received from the Woodward Iron Company the following invoices, which after checking up we find have not been paid by this office:

Invoice dated	Sept. 30th	-----	\$.86	
"	"	" 30th	-----	25.85
"	"	Nov. 17th	-----	227.03
"	"	" 17th	-----	1201.31
"	"	" 21st	-----	1213.97
"	"	" 21st	-----	224.71
"	"	" 30th	-----	36.99
"	"	Jan. 31st	-----	10.00
"	"	Apr. 30th	-----	17.05
"	"	Apr. 30th	-----	267.59
"	"	" 30th	-----	1413.82

Our records indicate they have not been paid, and before paying them, will thank you to attach your O. K. and forward by return mail, in order that we may handle promptly.

You will note the last item is listed as \$1413.82. They sent us a previous bill in the amount of \$1404.17, and later sent this amount as a corrected item, having added since the \$9.65. Evidently you can vouch for the above amounts, and we would thank you to get them back to this office as promptly as possible, in order that we may pay them and close the old items.

Thanking you for your usual co-operation, we are,

Yours very truly,

R. W. Kellou
Respondle
Secretary, Personal Interests
of Thomas A. Edison.

LAS/ME

SECRETARIAL SERVICE DEPARTMENT OF THOMAS A. EDISON, PERSONAL.

Memorandum No. 1000

DIVISION: Edison Benzol Plant, Woodward, Ala.

SUBJECT: Bond

Date June 20, 1917.

Mr. C. H. Opdyke, Supt.,
Edison Benzol Plant,
Woodward, Ala.

Dear Mr. Opdyke:

Not having heard from you in answer to my memorandum of April 25, 1917, \$1160 with reference to bond, it occurs to me that you may desire some further information in this connection, or perhaps have some objection to filling out the bond in the form in which the application is made.

All persons at Orange who handle money or have positions of considerable responsibility are bonded, though in many cases the amount of the bond is small. This policy has been carried out throughout the various interests of Mr. Edison, and the writer himself though handling no money, is required to come in under the arrangement. I simply mention this to show you that our request to you to fill out an application for bond is simply in pursuance of this general policy, and so that you will understand that the placing of various persons under bond is in no way a reflection upon their integrity and should not be so considered.

If there are any questions on the application blank which are objectionable to you, such as references from your friends, personal property holdings, etc., I would suggest that you fill in the application blank as regards the other questions, leaving the objectionable questions blank. I believe we can put this through with the Bonding Company.

I would be glad to hear from you as to your attitude in the matter, and thank you for your kind co-operation.

R. W. Kelley,

Secretary.

RWK/MEH

NEW JERSEY PRODUCTS, INCORPORATED
165 BROADWAY
NEW YORK

TRADE MARK
Thomas A. Edison

June 20, 1917

Edison Bensol Plant,
Woodward Iron Co.,
Woodward, Ala.

Gentlemen:-

We find that you are still sending bills of ladings to this company at Orange and would advise that under no circumstances are documents to be addressed to this company only at 165 Broadway, New York City.

We are now looking for one bill of lading which has been lost and would thank you to please observe this instruction carefully.

Yours very truly

NEW JERSEY PRODUCTS, INC.

A. C. C. C.
Vice President & General Manager

AOB:HJR

SECRETARIAL SERVICE DEPARTMENT OF THOMAS A. EDISON, PERSONAL.

Memorandum No. 107

DIVISION: Edison Benzol Plant, Woodward, Alabama. Date June 26, 1917.
SUBJECT: Daily Reports.

Mr. C. H. Opdyke, Supt.,
Edison Benzol Plant,
Woodward, Alabama:

Since Mr. Mason left the Organization, I understand that you have been sending us one less copy of the daily report. This is according to information I received from Mr. Meadowcroft. I should like very much to have a copy of this daily report in this office, which I have not had previously, and have not asked for before this time, for the reason that I supposed you were making about all of the reports you could get with one writing.

Will you not be good enough to make the same number of reports as previously and send one which has heretofore been sent to Mr. Mason, direct to the writer, and so very greatly oblige.

Thanking you, I am,

R. W. Kellow,
R. W. Kellow
Secretary.

MH

SECRETARIAL SERVICE DEPARTMENT OF THOMAS A. EDISON, PERSONAL.

Memorandum No. 1183

DIVISION: Edison Benzol Plant, Woodward, Ala.

Date June 28, 1917.

SUBJECT: Monthly Inventories.

Mr. G. H. Opdyke, Supt.,
Edison Benzol Plant,
Woodward, Alabama:

In order that we may arrive at accurate costs of the products of your plant, we should like to receive from you in the future an inventory of materials and supplies, work in process and finished stock at the close of each month, beginning as of June 30, 1917.

It is my impression that you do not carry very much in the way of materials and supplies, drawing upon the store room of the Woodward Iron Company for the bulk of your needs, though there may be some other items which should be included here which you have to purchase from other parties. We do not mean to have you inventory every bolt and nut on the place, if there is no considerable quantity of them, but we should like to get the value approximately correct.

We should also like to have an inventory of the work in process. I think this can be arrived at if you will estimate the quantity of material still in the system, and advise us, say, the number of days it has been in process. In order to arrive at the value of this material we shall of course have to know approximately the constituent amounts of each class of raw material, such as absorbent oil, sulphuric acid, etc. still remaining in the system. This we can figure the value of from our bills, but as to the labor, we can only arrive at this by knowing the length of time the material has been in the system, and multiplying this time by the cost per day of operating the plant.

We should like in addition an inventory of the finished stock on hand, that is, the quantity of benzol, toluol and the other products.

Can you not arrange to give us this monthly, beginning as above requested, on June 30th?

Your attention will be very much appreciated, and will enable us to get out better costs for Mr. Edison.

Thanking you very much for your prompt attention and advice, I am,

R. W. Kellow,
R. W. Kellow
Secretary.

ME

Gross Profit During the Season		\$101,116.54
Redemption of 17-1/2% Construction		
Expenses \$88,304.65	\$12,128.32	
Net Profit During the Season	88,988.22	
	<u>\$101,116.54</u>	<u>\$101,116.54</u>

One half net profits due you	\$44,494.11
Construction Expenses to be	
redeemed	17,326.15

[Handwritten Signature]
AGENT

NEW JERSEY PRODUCTS, INCORPORATED
165 BROADWAY
NEW YORK



July 11, 1917

Edison Benzol Plant,
Woodward Iron Co.,
Woodward, Ala.

Gentlemen:-

Kindly load in drums and ship to the British Chemical Company, Trenton, Ontario, an additional carload of toluol in drums. We find it necessary to do this notwithstanding the fact that we will be cancelled in connection with the unloading of this material since we cannot supply tank cars therefor.

Please therefore keep a good supply of drums available for this loading and I am today in receipt of telegraphic request from the Director of Explosives of the Imperial Munitions Board, requesting you to advise them by wire promptly as each shipment is made giving them our initial and number, shipping point, complete routing, total weight and destination, also numbering shipments consecutively. Inasmuch as we are shipping from two points, it will be necessary for this office to have this telegraphic advice from you so that we can give the shipment a consecutive number and therefore if you will wire me in accordance with the above as soon as shipments go forward, I will pass the information to this Chemical Company.

We will not want you to ship more than one additional carload during July unless we advise you further at a later date.

Yours very truly

NEW JERSEY PRODUCTS, INC.
A. Romery
Vice President & General Manager

AGE:HJR

Night letter answer to this over

NEW JERSEY PRODUCTS, INCORPORATED
165 BROADWAY
NEW YORK

REGISTERED
Thomas A. Edison

July 25, 1917

Edison Benzol Plant,
Woodward Iron Co.,
Woodward Ala.

Gentlemen:-

Referring to the shipments of solvent naphtha.

Mr. Edison tells me that he can see no good reason why our solvent naphtha should not be shipped in wood in place of iron drums and I would, therefore, suggest that each plant provide at least 100 substantial barrels for this loading. We are now canvassing the paint trade actively in regard to the solvent naphtha and I am hoping to give you shipping orders in wood in the very near future. If you know of any reason why this material should not be packed in wood, we would be very glad to have your suggestions in the premises.

Yours very truly

NEW JERSEY PRODUCTS, INC.

A. C. Conroy
Vice President & General Manager

AGB:HJR

NEW JERSEY PRODUCTS, INCORPORATED
165 BROADWAY
NEW YORK

 Thomas A. Edison

July 25, 1917

Edison Benzol Plant,
Cambria Steel Co.,
Johnstown Pa

Edison Benzol Plant,
Woodward Iron Co.,
Woodward Ala

Gentlemen:-

with reference to my telegram of even date regarding large stock of empty drums formerly used for aniline and klyrbane Oil, will you please note the following regarding the cleaning of these drums and be governed accordingly:

"Aniline Oil and klyrbane are poisonous if their vapors are inhaled, and both products are very readily absorbed through the skin. When cleaning the drums, the men should use rubber gloves and be very careful that none of the Aniline Oil or klyrbane touches their skin or sprays over their trousers or shoes. The men should take precautions not to inhale the vapors. This is easily avoided owing to the fact that the sweet odor is readily detected.

Aniline and klyrbane both being very soluble in solvent naphtha, the drums, for instance, can be cleaned by pouring twenty or thirty gallons of solvent naphtha in a drum, closing the latter by a plug, and revolving the drum for some time so as to bring the solvent naphtha frequently into contact with the inner side of the drum. The solvent naphtha, after being used for cleaning about thirty drums, should be dumped in a place where it can do no harm.

Men that are poisoned by Aniline and klyrbane usually show the effects of the same by their lips and ears beginning to turn blue. At the first sign of such a poisoning the man should be taken out into the open air, given strong, black coffee and rested a couple of hours. Possibly a doctor should be called.

Experience shows that by taking proper care whilst handling Aniline and klyrbane, any special danger can be avoided."

Yours very truly

NEW JERSEY PRODUCTS, INC

A. C. Emery

NEW JERSEY PRODUCTS, INCORPORATED
165 BROADWAY
NEW YORK

The Edison logo, featuring a stylized portrait of Thomas Edison with the name "Edison" written in a cursive script below it.

August 28, 1917


Edison Benzol Plant,
Woodward Iron Co.,
Woodward Ala

Gentlemen:-

I note on your report of August 24th you show 7,000 gallons of Pure Toluol and that you have sufficient drums to load an additional car. I am therefore sending you additional order on the British Chemicals Company. Please see that same goes forward at an early date. You also have shipping order covering one carload of solvent naphtha which we will be glad to have come forward as soon as possible.

We are still struggling with the benzol situation but we are producing so much more than we can use in our own chemical plants and the benzol market is so overstocked at this time that we are struggling to make empty the tanks which we now have and hasten their return to you.

Yours very truly

NEW JERSEY PRODUCTS, INC.

Vice President & General Manager

ACE:HJR

SECRETARIAL SERVICE DEPARTMENT OF THOMAS A. MEDVED, PERSONAL.

Memorandum No. 1750

DIVISION: Edison Benzol Plant, Woodward, Ala.

SUBJECT: Tank Cars

Date Sept. 7th, 1917

Mr. C. H. Opdyke, Supt.,
Edison Benzol Plant,
Woodward, Alabama.

I note that your daily reports are still showing that you have no tank cars on hand for the loading of Benzol and as at September 3rd you had on hand 76284 gallons of Benzol.

I have had this matter up vigorously with New Jersey Products, Inc. (Mr. Emery, Vice President and General Manager of that Company) and our Traffic Service Department, and am advised that the tank car situation is very bad at present. The market for Benzol at present also has some influence on the situation.

The supply of tank cars to you is handled by Mr. Emery and our Traffic Service Department and they assure me that everything possible is being done to furnish you with these cars. I understand that there are several cars on the way to you now which may arrive most any day. They are being traced by the Traffic Department and every effort is being made to hasten their movement. Mr. Emery also told me that he would write to you direct regarding the situation which I suppose he has done.

We will continue to keep in touch with the matter and if I can be of any further service to you at this moment I shall be glad to have you wire me.

R. W. MELLOW
R. W. Mellow
Secretary.

Encl. Address "Edison, New York"

From the Laboratory
of
Thomas A. Edison.

Orange, N.J. October 23, 1917.

Mr. C. H. Opdyke,
Woodward, Alabama.

Dear Sir:

Mr. Edison has referred your letter of October 6th to me for attention, and in answer would say that I am not clear as to whether you want to raise our own operatives 10%, or whether you merely mean that the cost of the work performed by the Woodward Company will amount to \$100.00 per month more to us, due to an increase of 10% to their workers. If you mean that our operators must be given this 10% increase in order to retain them, Mr. Edison says that he is agreeable to signing this extra charge if absolutely necessary.

Please advise me a little more in detail as to what action you have taken in the matter.

Yours very truly,

Charles Edison

CE/12

Ed
Mr. Gray -
P.O. note + return -
11/17
file
Woodward also:
Oct. 30-17

Mr. Charles Edison,
Edison Laboratory
Orange, N.J.
Dear Sir:

Referring to your letter of Oct 23-17
For your information I will explain the way the
plants are operated. The Woodward Iron Co. pays all of the
labor for both plants and Mr Edison is charged for
the Edison plant portion of the labor.
There are only 3 men on each plant that works
entirely one each plant. The rest of us, all work
joint for example, the exhaustor engineer runs
both exhaustors. The man in the laboratory does
all testing for both plants, and the labor or naphthalene
gang handles all naphthalene. (The subliner is a
good benedict) all of the naphthalene is sold and
shipped joint.

Now, what I wanted to say in my letter was the
Woodward Iron Co. gave another 10% bonus

and the way our plant is operated, the Edison plant would have to stand their portion of the raise, which will be about \$100 per month. If our plant was operated separate our labor cost would be much higher than it is.

Our main trouble now is congestion, today we had to shut our pure ^{down} stills, (no place for pure,) and will have to keep them down until a car arrives, expect a car before our crude tanks are full, but I am afraid we will get caught and have to shut down.

The Woodward plant can not take care of the gas we are getting and their storage is not as big as ours. That means if we shut down there will be 170 gallons total per day the government can not get. 170 gallons total made into T.N.T. and applied at the right place means some dead Germans. Trusting the above explanation will make ^{the} matter clear & am

Yours very truly
C. A. Dwyer

[ATTACHMENT/ENCLOSURE]

ALL CONTRACTS SUBJECT TO STRIKES, ACCIDENTS AND CAUSES BEYOND OUR CONTROL
ADDRESS ALL BUSINESS COMMUNICATIONS TO THE COMPANY AND NOT TO THE OFFICERS OR EMPLOYEES

J. H. WOODWARD,
PRESIDENT

R. H. BANISTER,
VICE-PRESIDENT

A. H. WOODWARD,
CHAIRMAN

D. E. WILSON,
TREASURER

HERBERT E. SMITH,
SECRETARY

WOODWARD IRON COMPANY

WOODWARD, ALA. November 15, 1917

Mr. A. C. Emory, Vice. Pres. & Gen'l Mgr.,
New Jersey Products, Inc.,
165 Broadway,
New York City.

Dear Sir:

Your letter of September 25th, addressed to Mr. Woodward, was received during my absence, and has been referred to me for reply.

We feel that there is an implied compliment in your request, as it indicates that we have taken our medicine so cheerfully that neither you nor Mr. Edison had any idea of how impatiently some of our Directors were awaiting the termination of the contract now existing between this Company and Mr. Edison.

The arrangement was criticized by some of our Directors on account of our having made this long-term contract. Under the circumstances, we cannot consider a renewal of the existing agreement, and expect to take over the Edison Plant here on March 15th, 1918, in accordance with the terms of our agreement.

We will, of course, sell Mr. Edison the output of the Plant he is now operating here, in case he cares to purchase at the market price, subject to the orders of the United States Government.

Regretting very much that we cannot comply with your request, we are

Yours truly,

WOODWARD IRON COMPANY,

Rhb-g

Edison, Orange, N. J.

Vice-President.

cc: Mr. Thomas A

NEW JERSEY PRODUCTS, INCORPORATED
165 BROADWAY
NEW YORK



November 16, 1917

Edison Benzol Plant,
Woodward Iron Co.,
Woodward, Ala.

Gentlemen:-

Confirming telegram last night:

Please note that ignoring all previous instructions, we are to again resume shipping all of our Toluol to the British Chemical Company at Trenton, Ontario, the material to be shipped in tank cars which will be provided by the British Chemical Company.

This will leave your drums free for benzol loading and I would ask that you load your benzol into drums as promptly as possible and forward same to the New Jersey Products, Inc. care of Thomas A Edison, Inc. Silver Lake, N.J.

I would also appreciate your early advice as to whether or not you have already put any Toluol into drums.

Kindly return our Order No. 3257 which was sent you covering loading to the Actna Explosives Company at Carnegie, Pa.

Yours very truly

NEW JERSEY PRODUCTS, INC.

A.C. Emery
Vice President & General Manager

Recd.
Per Mr. Smith
16 Dec 1917

ACE:HJR

NEW JERSEY PRODUCTS, INCORPORATED
165 BROADWAY
NEW YORK

Thomas A. Edison

November 19th, 1917.

O. H. Opdyke, Supt.,
Edison Benzol Plant,
Woodward Iron Company,
Woodward, Ala.

Dear Sir:

I have wired you today as follows:

"YOUR NIGHT LETTER. NOTE TOLUOL SITUATION. ONE HUNDRED FIFTY DRUMS SHIPPED FROM JOHNSTOWN SHOULD REACH YOU VERY SOON. BEING TRADED. STILL NO MARKET FOR SOLVENT NAPHTHA AND IF YOU CANNOT SAVE YOUR TOLUOL OTHERWISE YOU WILL HAVE TO WASTE SOLVENT NAPHTHA. PLEASE BE GOVERNED ACCORDINGLY. LETTER FOLLOWS."

We are tracing the 150 drums from Johnstown, and also urging the return to you of every possible drum from all sources. We have now given you all of our tank cars to the exclusion of Dominion and Johnstown. We also also sending you tank car for Toluol, and between both you should be well cared for from this time forth. However, both Woodward and ourselves are so badly loaded up with Solvent Naphtha, that if you cannot protect all of your materials you will, of course waste the Solvent Naphtha and save the Toluol.

Yours very truly,

NEW JERSEY PRODUCTS INC.

A. P. Macey
Vice President & General Manager

ACE10

CHEMICALS Registered Name

ALL CONTRACTS SUBJECT TO STRIKES, ACCIDENTS AND CAUSES BEYOND OUR CONTROL
ADDRESS ALL BUSINESS COMMUNICATIONS TO THE COMPANY AND NOT TO THE OFFICERS OR EMPLOYEES

J. H. WOODWARD
PRESIDENT

R. H. BANISTER
VICE-PRESIDENT

A. H. WOODWARD
CHAIRMAN

D. E. WILSON
TREASURER

HERBERT E. SMITH
SECRETARY

WOODWARD IRON COMPANY

WOODWARD, ALA. December 19, 1917.

Charles Edison 

Mr. Thomas A. Edison,
Orange, N. J.

Dear Sir:-

We enclose herein a copy of our letter of November 15th, advising you that we would take over your bensol plant at this place on March 15, 1918, under the terms of contract existing between us. We are writing you again on this subject because we thought possibly our letter might have miscarried and we do not wish to appear as reaching this decision without giving you due notice.

Yours truly,

WOODWARD IRON COMPANY.



Vice President.

rhb-b

STATEMENT OF WOODWARD PLANT DURING YEAR 1917

SALES-PROFIT-EXPENSES

----SALES----

Benzol-----	461,967 Gals. @ .47			219,434.47	
	Less:Freight Paid-----	1,618.42			
	" " Bill #51 paid 5/24/17	2,559.99			
	" " to be paid on (312,192 Gals.)	6,500.69	12,779.30		206,655.17
Toluol-----	61,546 Gals.----(3815 Gals. @ \$1.45)				
	57731 " @ \$1.25		77,695.50		
	Less:Freight to be paid on 57,731 Gals.	1,590.49			76,105.01
Naphthalene-----	452,074 Lbs.----(18,000 @ .09 1/2¢)				
	36,182 @ .09 ¢)				
	397,892 @ .08 ¢)				
	Less:Freight Paid-----	278.03			
	" " to be paid-----	1,478.86			
	" Discount-----	46.07			
	" Allowance-----	57.84			
	1/2 of commission \$54.11 omitted previous statement.	27.08	1,887.96		34,910.65
Solvent Naptha-----	15059 Gals. @ .15¢			2,257.35	
	Less:Discount----	15.60			2,241.75
					Net Proceeds
					319,912.58
Expenses					
Depreciation-----					
	Running expenses to the end of December			132,100.12	
	Redemption of 25% construction expenses of \$ 69,304.65			17,326.15	
					Expenses
					149,426.27
					Profit
					Net Profit
					170,486.31
Mitsui & Co. 1/2 Profit-----	85,243.15				
Edison & Co. 1/2 "-----	85,243.15				

NEW JERSEY PRODUCTS, Incorporated
165 Broadway
New York

Function Edison Benzol Plant, Woodward, Ala. Memorandum No. 33
Subject Toluol Date Jan. 10, 1918
To C. H. Opdyke, Supt.,
Edison Benzol Plant,
Woodward, Ala.

I have been endeavoring to have an additional tank car rushed to you by the British Chemical Company for loading, but they advise us by telegraph today it is impossible for them to secure a tank car, and that they have instructed the American Steel Package Company of Defiance, Ohio, to immediately rush to you 1 carload containing 120 drums.

These, after loading with TOLUOL, ship to the British Chemical Company, Trenton, Ontario, Canada, at the earliest possible moment.

I note from your Daily Report that you have on hand 80 empty drums. If these drums are suitable for TOLUOL loading I suggest you immediately load up say - 1 carload of Toluel in these drums, and replace the number that you use from the stock which you receive from the American Steel Package Company.

You will, of course, require an additional shipment of drums to clean up your Toluel shipments at the close of business in March

Matters are progressing nicely looking to the purchase of our plant by the Woodward Company at the close of our contract on March 15th, and I will be glad to have advice from you as to just how you will finish up your production at this plant. I presume the program will contemplate the Woodward Iron Company shutting off the gases from your plant as of March 15th, and then giving you sufficient time to work out the material in process so that we will not turn over to them any of the product.

It is our plan to hurry drums or a tank car to you fast enough to enable you to have all of your BENZOL and SOLVENT NAPHTHA roll to us at Silver Lake by the middle of March. But, of course, your final shipment of TOLUOL will go to the British Chemical Company.

Yours very truly,

NEW JERSEY PRODUCTS INC.

A. C. Conroy
Vice-President & Genl. Manager.

*Am Steel Pkg Co
advise by wire today
shipped 102 Drums in
So Pac 56163 Route
A. C. and ^{AD-10} N to Woodward,
shipped from Defiance, Ohio*

Call Address:
Mitsui, N.Y.

MITSUMI & CO., LIMITED
(Mitsui Bussan Kaisha, Ltd.)

Telephone 4000, Madison Square

TOKIO
YOKOHAMA
YOKOSUKA
KOBE
OSAKA
NAGASAKI
MOJI
NAGOYA
KUCHINOTSU
NIIGATA
TSURUGA

MIKI
WAKAHATSU
KARATSU
KURE
KISHIMA
SASEBO
NAZURU
MURORAN
AWOMORI
MIYAKO
SUNAGAWA

OTARU
SAPPORO
TAIPEH
TAINAN
CANTON
HONG KONG
SHANGHAI
NEWCHWANG
CHOSHUN
HARBIN
VLADIVOSTOK

DALNY
TIELING
TIENTSIN
CHEFOO
HANKOW
SWATOW
AMGY
FOOCHOW
TSINGTAU
PEKING
GIRIN

MOURDEN
SEOUL
CHEMULPO
ANTOHKEN
HWANCHINTU
BANDOK
RANGOON
BOURABAIA
CALCUTTA
SYDNEY

LONDON
HAMBURG
LYON
PETROGRAD
DALLAS
SAN FRANCISCO
PORTLAND
MANILA
BOMBAY
SINGAPORE

25 Madison Avenue

New York, Jan., 19, 1918

Mr. Thomas A. Edison,
Orange, New Jersey.

ATTN: MR. KELLON

Gentlemen:-

We beg to enclose herewith statement of account of Woodward Plant during the period of July 1, 1917 and Dec., 31, 1917, and our check amounting to \$24,684.89 covering payment of one half of net profit during the season.

As to the deduction of redemption of 25% construction expenses from gross profit during the season, we beg to state that we have done so according to the request of your Mr. Spindle, and we trust you will find that construction expenses of \$89304.65, have been fully redeemed.

After March 15, 1918, the Plant will be entirely in your possession, and if you sell the Plant to the Woodward Iron Co., after that date and it necessitates us to certify to the effect, don't hesitate to ask us to do so.

Yours truly,
MITSUMI & CO., LIMITED

ST/RBA

R. Tanji
By.....

[ATTACHMENT/ENCLOSURE]

STATEMENT OF ACCOUNT

OF

WOODWARD PLANT DURING THE PERIOD OF

July 1st, 1917 - December 31st, 1917.

RUNNING EXPENSES DURING THE MONTHS OF

JULY	\$10,530.51	
AUGUST	9,063.84	
SEPTEMBER	9,806.32	
OCTOBER	10,553.07	
NOVEMBER	13,207.51	
DECEMBER	9,833.34	
	<u>\$83,094.39</u>	\$83,094.39

NET PROCEEDS FROM THE SALE OF PRODUCTS

BENZOL:
 199,592 gallons @47½¢ per gal. \$94,806.27
 Less freight to be paid
 199,592 gallons figured on
 a basis of 7-1/4 lbs to a
 gallon = 1,447,042 lbs. @
 38¢ per cwt. 5,498.76
\$89,307.51 \$89,307.51

TOLUOL:
 30,718 gallons @ \$1.25 \$38,397.50
 Less freight to be paid
 30,718 gallons figured on
 a basis of 7-1/4 lbs. to a
 gallon = 222,705-5 lbs. @
 38¢ per cwt 846.28
\$37,551.22 \$37,551.22

NAPHTHALENE:
 289,538 pounds @6¢ per lb. \$23,163.04
 Less freight to be paid 228.96
\$22,834.08 \$22,834.08

SOLVENT NAPHTHA:
 4,650 gallons @15¢ \$ 697.50

	\$ 697.50	
	<u>\$83,094.39</u>	\$ 149,790.31
	86,885.92	
Gross Profit	<u>\$149,790.31</u>	<u>\$149,790.31</u>

Gross Pfofit during the season	\$86,695.92
Redemption of 25% Construction	\$17,326.15
Expenses \$69,304.65	<u>69,369.77</u>
Net Profit during the season	<u>\$86,695.92</u>

One half net profit due you \$34,684.89

MITSUI & CO., LIMITED

By *Koichi Ito*
 MANAGER

Secretarial Service Department

THOMAS A. EDISON, PERSONAL

FUNCTION: Edison Benzol Plant, Woodward, Ala. Memorandum No. 430
SUBJECT: Naphthalene - property of Mr. Edison Date January 26, 1918
TO:

Mr. C. H. Opdyke, Supt.,
Edison Benzol Plant,
Woodward, Ala.

Your notation on daily report of January 22nd to the effect that 14 tons of Naphthalene on hand is the property of Mr. Thomas A. Edison is noted. I presume this notation is made to distinguish this quantity from joint naphthalene.

We will depend upon you to see that this is shipped as property of Mr. Edison.

R. W. KELLON
RWK
Secretary.

RWK/JL

Copies to- Mr. A. C. Emory

1533-1-750-1117

NEW JERSEY PRODUCTS, Incorporated
165 Broadway
New York

Function Edison Benzol Plant, Woodward, Ala. Memorandum No. 165
Subject Crude Solvent Naptha Date Feb. 25, 1918
To

Mr. C. H. Opdyke, Supt.,
Edison Benzol Plant,
Woodward Iron Co.,
Woodward, Ala.

Dear Sir:-

I have your letter of February 17th with reference to the Crude Solvent Naptha which you returned to the tar tanks of the Woodward Iron Company and I would suggest that you dispose of subsequent accumulations in the same manner so long as we have the operations of the plant or until March 15th.

In connection with the transferring of the plant as of March 15th, I would be glad to be advised as to how long you believe it will take to work out the problem after that date before we are entirely through at Woodward; for instance, assuming that the gases are shut off from your operation on March 15th, how long will it take you to complete the development of your benzol, toluol and naphthalene flake. I am trying to get some line on the situation as to how we can best handle the situation and dispose of the heavy tonnage of benzol which you have accumulated. The present railroad situation has, or course, caused a very unfortunate situation on containers.

I note that you have now accumulated a carload of naphthalene so we will expect you to make shipment as soon as a line is open.

Yours very truly

NEW JERSEY PRODUCTS, INC.

A. B. Emery
Vice President & General Manager

ACE: HJR

THOMAS A. EDISON, PERSONAL

Office of Secretary

FUNCTION: Edison Benzol Plant, Woodward, Ala.

Memorandum No. 14

SUBJECT: Plant records.

Date April 12, 1916

TO:

Mr. C. H. Opdyke, Superintendent,
Edison Benzol Plant,
Woodward, Alabama.

Thank you for your letter of April 7, 1916, regarding the records of the Plant which you state you will send to Orange when you have finally closed up business.

What I have in mind is the Formulae used in manufacturing products and any other records of manufacturing that you may have, together with such other papers as in your judgment should be filed away by us here. It may be that Mr. Edison may require the formulae etc. at some later date; at any rate it would be very interesting to have them in our files.

Now that Mr. Mason has left us, I do not know of any record of the data being on file here at Orange.

Thanking you for your further attention at the proper time, I am,

R. W. *R. W. Miller*
Secretary.

25.

Copies to:-

1535-1-750-917

EDISON BEHZOL PLANT

Woodward, Alabama

---000000---

Statement of undistributed Profit & Loss of Plant
as of January 31st, 1920, to be shared by Mitsui
& Co. Ltd. and Thomas A. Edison

Profit

Unused Freight and Contingent Reserves (Details as follows)

8899.94

Year	For	Amount Reserved	Amount Used	Balance Unused
1916	Freight	3290.00	1860.72	1429.28
1917	"	11670.34	5532.29	6138.05
1918	"	1042.60		1042.60
1918	Contingent	300.00	9.99	290.01

Credit Memo #3 of Thomas A. Edison for plant account dated
January 31, 1920 for Laundry Accounts

949.95

Credit Memo of Thomas A. Edison for plant account #4.
Following Credit Memo - Unexpired Insurance

662.75

January 31, 1920 - Unexpired Insurance
not previously accounted for in statements of Mitsui & Co.

#55 A June 1, 1917 Settlement of Seaboard Air Line for
shipment of Naphthaline burned in car H.Y.C. 149122

1443.36

August 31, 1917 Freight Allowance

285.25

\$12,241.25

LCSE

Bill #2, January 31, 1920 of Thomas A. Edison for sundry items not
previously billed to Mitsui & Co. \$1475.48

Bill #20, January 31, 1920 of Thomas A. Edison, Personal
covering freight allowances due him on shipments of Benzol
on his orders during year 1917 4222.45

Bill #31, January 31, 1920 of Thomas A. Edison, Personal for
amount due him on shipment of Toluol on March 5th, 1917 in car
Southern 15962 763.00

Balance of Profit to be distributed \$6460.93

5780.32

\$12,241.25

Share of Mitsui & Co. 50% 2890.16

" " Thomas A. Edison 50% 2890.16

5780.32

Apr 9/20

28-891

HEAD OFFICE, TOKYO, JAPAN		
YOKOHAMA	CHANG CHUN	MANILA
Kobe	HARBIN	BANGOR
OSAKA	YANGYUEFOH	BANGSON
NAKASAKI	DALNY	SOURABAYA
MOI	TIELING	SEMARANG
NAGoya	THE TSIEN	BATAVIA
KUCHINGTU	CHEFOU	SINGAPORE
MIKÉ	HANKOW	SALUPTRA
WAKAMATSU	SWATOW	BOMBAY
KARAI	ANGY	SYDNEY
MURORAN	FOOCHOW	MELBOURNE
HANDATE	TSINGTAI	LONDON
OTARU	PEKING	LYON
TAIPEI	CHEN	MARSEILLE
TAIPEI	MOUDEN	PECORIAS
CANTON	SECHW	DALLAS
HONGKONG	CHENG, HO	SAN FRANCISCO
SHANGHAI	AMUNG	PORTLAND
NEWCHANG	KWANCHYU	SEATTLE
		BUENOSAIRES
		ETC. ETC.

Cable Address for all offices:
"Mitsui"

mitsui & co. limited
(Mitsui Bussan Kaisha, Ltd.)

NEW YORK

MAIN OFFICE, 65 BROADWAY, TELEPHONE 7920 BOWLING GREEN
SILK & HATSUJAI DEPT'S, 25 MADISON AVE., TELEPHONE 1000 MADISON SQ.
TEA DEPT., 87 FRONT STREET, TELEPHONE 704 BOWLING GREEN

March 1st, 1930.

Thomas A. Edison, Inc.,
Orange, N.J.

Attention - Mr. Kellow

Gentlemen:-

Please accept our thanks for your favor of February 26th, enclosing Mr. Edison's check for \$10,000, returning operating capital advanced by us in connection with the Edison Benzol Plant at Woodward, Alabama.

Yours very truly,

MITSUI & CO., LTD.

S. Guji

ST:SM

Mr. Kellow

Special Collections Series -- Chemical Production Records Edison Chemical Works Records

These records consist of interoffice communications, technical notes, and other documents pertaining to the operations of the Edison Chemical Works in Silver Lake, New Jersey. Formally established around 1905, the Works manufactured chemical compounds used in Edison's products, such as iron and nickel compositions for storage batteries and wax for recordable phonograph cylinders. It became a division of the Edison Storage Battery Co. sometime between 1915 and 1919.

Documents relating to the Edison Chemical Works can be found in both subgroups of the archival record group at the Edison National Historic Site: (1) Plant Records [intermixed with the organic plant records]; and (2) Exide Corporation Gift, Accession #495. As in the case of the records for the organic chemical plants, these documents do not constitute the complete business records of the Edison Chemical Works. The material in the Exide gift subgroup appears to represent items relating to Edison personally among the papers of the senior engineers and managers at the Works.

All of the selected documents are from the Exide gift subgroup. The folders are arranged according to the individual experimenter or unit with whom Edison was corresponding: (1) J. V. Miller Papers; (2) C. F. Hunter Papers; (3) W. J. O'Dair Papers; (4) Other Experimenters; (5) Wax Division Papers.

Related material can be found in the Edison Chemical Works folders in the Edison General File Series; in Notebooks by Experimenters Other Than Edison—Chemical Experiments in the Notebook Series; and in Edison Storage Battery Company—Plant Operations and Research Records in *Thomas A. Edison Papers: A Selective Microfilm Edition*, Part IV.

Folders Not Selected [from Plant Records Subgroup]

Edison Chemical Works. These folders contain business records, production reports, interoffice correspondence, and financial material relating to the prewar chemical business.

Central Laboratory, TAE Industries. These records consist of a detailed series of research requests and assignments relating to problems in battery and wax production, 1918-1920. This work was conducted at the Silver Lake laboratory, rather than at West Orange, and there is no evidence of any substantial Edison involvement.

Phenol Resin and Wax Dept. These folders contain internal correspondence and weekly reports dating from 1916-1917 and 1924.

**Special Collections Series -- Chemical Production Records
Edison Chemical Works Records
John V. Miller Papers (1913-1920)**

These documents consist primarily of interoffice communications, technical notes, and production reports exchanged between Edison and his brother-in-law John V. Miller, manager of the Edison Chemical Works. The dated items cover the years 1913-1915 and 1919-1920. There are also a number of undated technical notes from Edison to Miller, one of which may have been written as early as 1909. Other correspondents include Robert A. Bachman, vice president and general manager of the Edison Storage Battery Co.; Ralph H. Beach of the Federal Storage Battery Car Co.; chemical engineers Thomas D. Greenley and Charles F. (Frank) Hunter; Edison's personal assistant William H. Meadowcroft; and construction and maintenance manager Charles A. Nicolai.

Most of the documents relate to composition and manufacturing process experiments on the iron and nickel mixes used in storage batteries. Also mentioned are Edison's other chemical plants at Silver Lake, which produced phenol and other organic chemicals; the Wax Dept.; and general equipment and operations issues such as water usage. Many of the notes in Edison's handwriting have been stamped on the back with the date and the notation "Received Edison Chemical Works Silver Lake, N.J."

All of the documents have been selected except for duplicates.

MAY 2 1898

Write G. V. Miller

Say I have ordered
Carload Limestone
from Cement Co to be
shipped to School
Goldstein says when kept
damp absorbs all
the SO_3 + SO_2 perfectly
at great rate —



AS EVIDENCE OF THE EXCELLENCE OF THESE CARS, MR. EDISON HAS GIVEN TO US THE
RIGHT TO THE EXCLUSIVE USE OF HIS STORAGE BATTERY FOR TRACTION PURPOSES

FEDERAL STORAGE BATTERY CAR COMPANY

MANUFACTURERS OF

BEACH CARS

EQUIPPED WITH

EDISON STORAGE BATTERIES

EXPRESS: UNITED STATES EXP., BLOOMFIELD, N. J.

FREIGHT: ERIE R. R., SILVER LAKE, N. J.

TELEGRAPH: NEWARK, NEW JERSEY

CABLE: FERRISAR, NEWARK-NEW JERSEY

GENERAL OFFICE AND WORKS: FRANKLIN STREET NEAR BELMONT AVENUE
TELEPHONE: 3746-3747 BRANCH BROOK

SILVER LAKE, NEW JERSEY

June 18, 1913.

*File under
Mr. Edison*

J. V. Wheeler

Mr. Thomas A. Edison,
Orange, N. J.

My dear Mr. Edison:

Relative to the attached letter; we have gotten the machinery ready from the Crocker Wheeler Co. to put in the shop but we have been unable to take it because I have not had the money to pay for it, but I expect to have it within a very short time; probably within a week. In the meantime I would thank you very much if you will let the engine run along just as it is. I have a meeting tomorrow to close up with the Brown matter. I hardly think it will be fully closed up but will be able to move it along so that some time during the coming week we will be able to close it up. In the meantime I am busy selling stock in small lots and am getting along with it. Very sorry to keep you waiting but I cannot help it.

Yours truly,

R. H. Beach

President.

RHB/GBW

Enc.

[ATTACHMENT/ENCLOSURE]

EDISON CHEMICAL WORKS

THOMAS A. EDISON, President
H. A. HARRMAN, Vice-President & Genl. Mgr.
H. P. MILLER, Secretary and Treasurer
J. V. MILLER, Manager

JUN 18 1913

TELEPHONE, 1021 HAWTHORNE
TELEGRAPH ADDRESS, VIA NEWARK, N. J.
OFFICE ADDRESS, WALLA WALLA, BLOOMFIELD, N. J.

SILVER LAKE, N. J. June 18, 1913

Mr. Thomas A. Edison,
Edison Laboratory,
Orange, N. J.

*Beach -
How about this?*
Σ

Dear Mr. Edison-

We would like to call your attention to the matter of supplying power to the Beach people or the Federal Storage Battery Co.. We have our plant connected with the Public Service and are using that power but we have to run a large engine, 250 H. P. to supply a few horse power to the Beach people. We have taken the matter up with the Beach people several times but they state that there is some question about getting the material from the manufacturers. We doubt this statement somewhat, as we believe the manufacturers have the motors, transformers, etc., ready but the Beach people will not take them. Do you want us to continue running the engine indefinitely? Probably a word from you to Mr. Beach might settle the matter and they would complete their arrangements and we would be able to shut down the engine.

Yours truly,

EDISON CHEMICAL WORKS.

J. Miller

JVM/c

EDISON CHEMICAL WORKS

THOMAS A. EDISON, President
 H. A. HARRISON, Vice-President & Genl. Mgr.
 W. H. MILLER, Secretary and Treasurer
 J. V. MILLER, Manager

Telephone, 1081 BRADEN BRIDGE
 TELEGRAPH ADDRESS: VIA SPRING, N. J.
 EXPRESS ADDRESS: WELLS FARGO, HIGHTSTOWN, N. J.

*File
 Mr. Edison*

SILVER LAKE, N. J. July 23, 1913.

*J.V. Miller
 Better make up 2 cells with this iron
 only or 2 cells with Reg 7/2 of
 10% of this + 2 cells with
 20% - if after 500 Ent...
 runs to show us good*

Mr. Thomas A. Edison,
 Orange, N. J.

Dear Mr. Edison:-

Some time ago I submitted to you the analysis of Iron Mix recovered by means of the exhauster from the Iron Loading Dept. in Orange, N. J. At the time, we had not determined the alumina contents. The complete analysis is now as follows:-

Silicon	- 00.205%	Fe	- 85.500%
Calcium	- 00.258%	HgO	- 6.585%
Alumina	- 00.08%		

There is on hand of this material about 12000 lbs.

We wish to know whether you care to mix this in small quantities with the O. P. mix, or let it stand until we have a long test on the cells now running.

We took the matter up with Mr. Bachman, explaining to him that there was a great loss of iron through this exhauster. They have changed things now so that this loss has been considerably reduced.

Yours sincerely,

Edison Chemical Works.

J. Miller

JVM/R(P)

RECEIVED

JUL 29 1913
 EDISON CHEMICAL WORKS
 SILVER LAKE, N. J.

J V Mills —

Mr Edison

Nickel O_2

Your 4521-22 23-

are very Bum —

Look out

RECEIVED
SEP 30 1915
EDISON CHEMICAL WORKS
SILVER LAKE, N.J.

Mr. Hunter

Notes returned
JVM

Report of week ending..... June 20th/14.

Edison Chemical Works

	<u>During Week</u>	<u>Production</u>	<u>Stock on Hand</u>
Nickel Hydrate	7665#	Nickel Hydrate	56820#
Iron Mix-Small	6597#	Iron Mix-Small	19610 $\frac{1}{2}$ #
General		General	
Nickel Anodes Curved	2461# = 70	Nickel Anodes Curved	2605# = 74
Bar		Bar	
		Distilled Water	96 Gals

		<u>Shipments</u>	
<u>To Orange</u>		21% Electrolyte	
Nickel Hydrate	2454#	38% "	19505#
Iron Mix	6231#	Nickel Anodes Curved	1415# = 40
Jelutong Paint		Bar	
		Distilled Water	193 $\frac{1}{2}$ Gals
		Hypo	500 Litres

To Deutsche Edison Accumulatoren Co.

Iron Mix

Production Labor	372.74
General Expense	913.74
Investments	45.75
Total	1632.23

Pay Roll

Employees - Total	36
End of week - 34	

Bills received during the week	\$ 5632.67
Sales during the week	4406.86

Remarks on reverse side

[ATTACHMENT/ENCLOSURE]

Form No. 107

EDISON CHEMICAL WORKS

Report of week ending June 20th/14.

Average Results of Mix Nos.	IRON		To Osmose.		Rec. 200 to 1V.		Rec. 200 to 1V.	
	Leading	Weight	1st Run at 200 to 1V	2nd	4th at 200 to 1V	5th	8th at 200 to 1V	9th
	Gm	Hg	Gm	Hg	Gm	Hg	Gm	Hg
Lowest	25.4	25.6	1790	1760	1142	1027	1740	1700
Highest	26.6	26.4	1900	1940	1224	1227	1775	1760
Average	26.5	26.5	1830	1831	1202	1177	1745	1731

NICKEL
(24 Batches)

Average Results of Batch Nos. #3190 - 3215.

	Leading Weight	3rd Run at 200	16th Run at 200
Lowest	7.725	1130	1315
Highest	8.075	1280	1430
Average	7.825	1225	1370

Remarks on reverse side

[ATTACHMENT/ENCLOSURE]

EXPERIMENTS

NICKEL -

- #1957- Purpose- Effect of quick drying on loading weight.
General- Sample from Agitating tank.
Detail - Boiled to 15.87% Solids, dried 100°C in 49½ hrs.
- #1958- Purpose- Effect of quick drying on loading weight.
General- Sample from Agitating tank.
Detail - Boiled to 18.7 % Solids, dried 100°C in 74½ hrs.
- #1950- Purpose- Effect of quick drying on loading weight.
General- Part of batch #5205.
Detail - Dried at high heat 120°C in 17 hrs.
- #1961- Purpose- Effect long drying on loading weight.
General- Part of #5244.
Detail - Dried at 100° in 93 Hrs.
- #1962- Purpose- To check regular driers against laboratory drier.
General- Part of #5209.
Detail - Dried in gas oven 65 hrs.
- #1963- Same as #1962.
- #1964- Purpose- Effect of quick drying on loading weight.
General- 5 pans of batch #5235.
Detail - Dried in high heat drier at 120° in 27 hrs.
- #1965- Purpose- Effect of long drying on loading weight.
General- 3 pans of batch #5235.
Detail - Dried in low heat drier, dried in 12 days.
- Batch #5264- Purpose- Effect on loading weight of not concentrating
mash as much as reg batches in precipitating tank.
General-
Detail - Boiled to 13% "- dried at 75 lbs steam pressure.
- #5265- Same as #5264.
- #5266- " " #5264.
- #5267- Purpose- Effect on loading weight of boiling NiSO₄ at
Blag. #2 longer than regular.
General- Made 3 regular batches.
Detail -
- #5268- Same as #5267.
- #5269- " " #5267.

IRON - None.

[ATTACHMENT/ENCLOSURE]

J. D. Miller —

I note Expts on this
sheet but I do not see
results



J. V. Miller —

Put up 4 packets each
of 241E + 242E 5 grams

Each sug way + send to
Smith for test,

Edna

put to change

July 3/11/10

J. V. Miller

*75% Down the air Carbonate the KOH,
Edison*

July 16th, 1914.

TDC-9-807

Mr. R. A. Bachman:

As instructed I have examined the equipment for the manufacture of electrolyte at the Edison Chemical Works. Mr. J. V. Miller was not at the plant when we got there, and we were taken through the plant by Mr. Hunter, who talked with Mr. Miller over the telephone while we were there. *in solution quite thick*

75% Mass

- .63*
- .53*
- .58*
- .65*
- .56*
- .67*
- .50*
- .53*
- .62*
- .56*
- .62*

The plant in use at present consists of three tanks of 1/4 in. iron 5 feet 9 inches diameter and four feet high. Each of these tanks takes five drums of the solid potash and produces about 7333 pounds of 33% KOH in a batch. Two of these tanks are settled before drawing off the solution. Mr. Hunter states that the settling requires seven days. The tank which is not settled is said to produce finished solution containing only a few hundredths of 1% of suspended or insoluble matter. The water used in dissolving the potash is condensed steam from the Nickel Hydrate dryer. All of these tanks are equipped with conical sheet iron covers and facilities for blowing pure air into the solution to prevent caking of the Potash in the bottom of tank, and to mix the solution.

There are two additional tanks in this equipment but they are not used regularly. These measurements are:

- 1 - 5 feet 9" diameter x 4 feet high
- 1 - 8 " " " x 5' 2" "

Mr. Hunter states that the labor cost is .0002¢ per pound and the complete cost all items, included 2.396 cents per pound.

The new equipment consists of 2 tanks 13 feet diameter 4 feet high having racks built at the bottom to hold the cakes of solid Potash, and equipped with air and water inlet pipes. These tanks have a total capacity of 25000 Liters - a useful capacity of 10000 Liters and are designed to handle 4200 A-4 equivalent per day

T. J. GREENLEY
Grumley

*Mr Edison
Please note the above and so
as aq after all
Bachman*

CS July 21]

JT Miller

Are you going to return
to the kind of Bryum that
gave us lower capacity
after 10 Hat —



July 21]

J.V. Miller -

Mail

2 4/5

I find that new pressed if
soaked in 3% phosphoric
acid, 3 times bulk of
solution to NiSO_4 washed free
goes to zero in a tube -

S

[July 25]

Mail. Letter 2078
Memo
1977. #63.

JV Miller

Suppose you send up to

Petrovich $\frac{1}{2}$ lb Ni(OH)_2 + Tell

him to determine the Carbonic acid
in it accurately & then expose it
for a week to the air & again
determine CO_2 —

↳

Any acid radical will swell
the nickel in tubes when it goes
in the KOH in cell —

↳

[July 25]

Mano
300 # 611.

I suggest you try a little

Nitric acid in your sulphuric
acid used on Red iron &
warm the iron & acid a little —

Many Sulphides will be oxidized
& dissolved in the acid —

Perhaps you make a test

H_2SO_4 does not decompose —

Sulphides of Iron —



CSW4251

Memo
JMM.#65

Please see also one or 2 oz
of Oxide of Tin for me by H. Proger
& put in closed bottle & send
up -

S

[July 25]

Memo
J.M. #66.

J.V. Miller - Mail -

Have you any of 232 E
Which is a Duplicate of
156 E but $\frac{1}{4}$ lb was
sent you - Your ground
it up - into 3 samples
246 E 247 E + 248 E

I want 2 more packets
5 gram old + 2 new -
thru 150 mesh -
If you have none left will
make some more 2

July 27
Memo
JMM-67

JMM.

Send you a lot of old
iron marked 337. E. This has
been treated

Crush & screen through
150 mesh & make 2 seven
gram $\frac{1}{2}$ grids, 5 grams of
~~the old~~ 337 & 2 grams of
Regular iron
Mark it 338 E

NO 338 E ~~is~~ 337 screens three
150 mesh $\frac{1}{2}$ plus 7 grams each
no new iron used -

Memo
JVM#68

I also send you a lot
of old iron never treated
Grind this up & screen
thru 150 mesh. Mark this
old iron 340 E.

341 E is 2 packets 5 grams of
240 thru 150 mesh mixed with
2 grams irregular iron
making 7 grams packets

242 E is 2 packets.
with 7 grams of 340 thru 150
mesh / no new iron used -

Edson

Sumo
Am #13

[JULY 29]

John Miller

I send you

343 E make

2 in Reg 5 gram packets

Then make 2 in 7
gram packets &

Message #344 E

Send to Smith

S

[July 29]

Miller - ^{memo.}
~~Jim~~ #74

Never mind the old
pockets, use
the two last
bottles I sent you
& carry out
the instructions sent
with them -

[50429]

Memor
JM.#75

J. V. Miller - mail

Mr. Edison.

Silver Lake telephoned me
the following.

Your note to J. W. Miller.

Have you any of 232 E duplicate
of 156 E, but 1/4 lb was sent you
ground up into lipid samples
246-7-S E I want two more
each in 5g. and two in
through 150 mesh.

Photo #66

Please give up in experiment
number for these.

J. V. M.

I don't understand

this - I sent you down
2 bottles of 1 lb. each yesterday

2

Memo
Jm. # 75

The one marked 337 E
is a dup of 232 E -

Never mind old 232 E

337 is the important
one + carry out the
instructions sent with
the 2 barrels -

Memo
Jm. # 76

I am finding lots of
Sulphur in your red
iron, by repeated treatments
with weak HCl -
2

#26

Memo
IVM.#86

JV Miller

Better lead 2 tubes
with 5 grams each

+ 2 tubes with

7 grams each

+ Number them

345 E 5 grams

346 E 7 grams

send to Smith -
I put the 40 in up here

made and
not to be given to
Smith
Ship to
Smith

51. Mercury
X "
Order # 10431-7 8/7-12

Mr Edison

As H^{of} left also whom we
have been buying Mercury from have
advanced the price from \$138⁰⁰ per flask
to \$190⁰⁰. I have gotten a price of \$175⁰⁰
from Saml G. Mcbatter also from whom
the Edison Mfg Co. get theirs. They
say they could not supply much
at that price we need 10 flasks
right away. Do you think we should
order twenty?

J. V. Miller

Order 20 flasks

S

[August 18]

J V Miller - ✓

I note a lot of Ni²⁺ tubes missing marked

Expect they have gone a long time & are down to 800

I think they are yours


Why keep them so long



[Sept 17]

J. J. Miller -

When you make that non-
synthetic iron from the
Wichita Co save 3 or 4
lbs I want to make up an
A4 Cell with new die &
test for cold



[Sept 17]

J V Miller -

Send me up 3 or 4 oz
of quick dried low loading
weight 11. (OH) 2 say about
6.500 to 6.800 -

if you have any

?

[Oct 13, 1944]

J. V. Miller

You have a lot of
Makels been running
several hundred

times & gone way
down to 400 or so

Why lumber up our
test room with

them when they are
so low 2

Ca 1914-1917

Miller

Give Kammerhoff

all the data as to sizes
of pans depth amount of
filter press stuff each
contains - time of
Drying -

Also Capacity of filter
presses -

Pre-clarifying Tanks for No.
Soda & Wash tanks -

Selling Tanks - ~~number~~
~~of feet~~

Full information
necessary we can
get out plans -

also disallowing Muel
tanks Capacity
etc

want Capacity for
20000 lbs daily

Edison

[Feb 27, 1915]

3.

J.V. Miller

How you progress
on Pauling your
old go

Answered rebuttal

CMARCH 4, 1915

J. V. Miller

53
X Edison

How about charging

\$10. why

~

7.266 11/5/13

March 4th/15.

Mr. Thomas A. Edison,
Orange, N. J.

Dear Mr. Edison:-

Re/Charge for Steel Drums,
Carbolic Acid Plant.

We received this morning your note relative to our charge for the 110 gallon steel drums which we sent to the Carbolic Acid Plant. In reply would say that these are drums which we use for electrolyte shipments, and it has been our custom for a long time to charge these out at the price of \$10. each, with the idea that they are all loaned.

The idea of this charge is that being quite an amount, we would be much more apt to have them returned. The actual price is much less. The last drums we purchased Nov. 1913 cost us \$7.26 delivered at our Works.

When these drums were sent to the Carbolic Plant, we understood that they were borrowed only. Therefore, we made the customary charge of \$10. each.

If these drums are to be kept there and an actual sale made, I suppose we would have to credit them with the difference between the cost to us and \$10. The drums were new, never having been used for Potash. We will take up the matter with the Inc. Purchasing Dept.

Yours very truly,

EDISON CHEMICAL WORKS.

JVM/JCR

Mgr.

EDISON CHEMICAL WORKS

THOMAS A. EDISON, PRESIDENT
H. A. BACHMAN, VICE-PRESIDENT & CHIEF MGR.
H. H. MILLERS, TREASURER
W. H. MEADOWCROFT, SECRETARY
J. V. MILLERS, MANAGER

(4125) BRACKEN BOULEVARD
TELEPHONE 4427
TELEGRAPH ADDRESS, VIA NEWARK, N. J.
RADIOTELEGRAPH ADDRESS, WALKER FIELD, HIGHTSTOWN, N. J.

SILVER LAKE, N. J. March 12, 1915.

Mr. Thomas A. Edison,
Edison Laboratory,
Orange, N. J.

*JVM = I will put up
a new phenol plant, keep
this list before you as also*

Dear Mr. Edison-

Herewith enclosed we send you a list of a lot of mill
supplies, such as pipe fittings, shafts, pulleys, and pipe bands.
This material we have had on hand for a long time, and have made
two or three attempts to dispose of it through the other Edison
plants, but as yet we have disposed of very little.

You will notice that at the top of the list there are
quite a number of 1 1/2" Bells, and 1 1/2" Open Return Bends. These
would be very good for heating coils. They were bought some time
ago together with the 1" Tee iron for Nickel Hydrate driers. We
did not use them owing to the fact that we increased the output of
old driers, and new ones were unnecessary.

Also you will note on sheet two, three 5" expansion bends;
one is the U type, and two are the S type. Two of these were sent
here with the two B. & W. boilers, which we installed some time
ago.

We send this list to you with the hope that you can in
some way arrange with the different purchasing departments to have
it used. We are sending duplicate copies to Mr. Bachman, Mr. Cheshire,
and Mr. Saltzman.

Yours very truly,

EDISON CHEMICAL WORKS,

JVM/HDY

Miller Mgr.

~~say~~ Allright ⁴⁰⁴ x Clock-Time
Mr. Edison: ~~104~~

Mr. J. V. Miller wants to
know if they can buy
a Time Block. They
can get one for \$225⁰⁰

~~6/15~~ He says they now
have so many employees
coming and going that he
thinks it would be an
advantageous thing to have
Meadowcroft

May 7/15 ~~OK~~

Edison Chemical Works
Belmont Ave. Silver Lake.
Bloomfield & Belmont

Medium

*81A
X Animations*

RESULT

May 8th. 1915.

The Committee of One Hundred,
790 Broad Street,
Newark, N. J.

*Mr. Edwin
J. Mill.*

Gentlemen:

Mr. Edison, being the owner of the Edison Chemical Works at Silver Lake, N. J., has had referred to him your request to said Works for a contribution of \$250. Doubtless in addition to this request you have or will request contributions from Thomas A. Edison, Inc., Edison Phonograph Works and Edison Storage Battery Company, all of Orange. All of these Companies are owned or controlled by Mr. Edison, and because of the great loss sustained by him, due to the disastrous fire which occurred in December last, which necessitated the expenditure of a vast amount of money to rebuild, also because of the contributions to a great many worth causes during the past six months, also because none of the Companies mentioned are located within the City of Newark, he feels reluctantly compelled to advise that he cannot see his way clear to make any contributions whatever toward the fund required for the celebration of the 250th Anniversary of the settlement of the City of Newark.

Yours very truly,

(signed) Wm. H. Meadowcroft.

Assistant to Mr. Edison.

C.C. to Messrs: Wilson, Berggren, Bachman and J. V. Miller.

EDISON CHEMICAL WORKS

THOMAS A. EDISON, DIRECTOR
H. A. HACHESMAN, SUPERINTENDENT & CHIEF CLERK
H. P. MILLER, TREASURER
W. H. MEADOWSHOFF, SECRETARY
J. V. MILLER, MANAGER

TELEPHONE (4122) BRANCH HOUSE
TELEGRAM ADDRESS, VIA NEWARK, N. J.
HIGHTSTOWN, NEW JERSEY

SILVER PLATE, N. J. May 12, 1915.

Mr. Thos. A. Edison,
Edison Laboratory,
Orange, N.J.

Dear Mr. Edison:-

There are a couple of steel cars fitted for motors to be used for pulling reduction pots out of furnaces now standing idle in the new Chemical Plant. We could make use of them in our plant to good advantage.

Also we want to get a pressure tank for pumping some of our solution (as iron sulphate) by air pressure and do away with pumps which are a considerable trouble owing to the acid eating away the metal. There may be a tank in the new Chemical Plant which we might be able to use.

Will you kindly write Mr. Kammerhoff a letter allowing us to measure up the apparatus and if we can use same to remove them to our plant?

Yours very truly,

EDISON CHEMICAL WORKS,

JVM/HDY

J. Miller Mgr.

McClan
See me about it

MEMORANDUM
EDISON CHEMICAL WORKS

DATE June 18th-1915.

TO Mr. Bachman and Research. SUBJECT Re-Addition of Cobalt to Nickel Hydrate.

Mr. Thomas A. Edison,
Orange, N.J.
Dear Mr. Edison:-

*Day all right
1/10 percent will
do — one of them
knows is
opposite to
of your
contention
put it —*

Confirming conversation of the writer with you this afternoon regarding the quality of nickel hydrate as effected by the presence of Cobalt, we wish to give you the enclosed data sheet, which will show, in our opinion, that Cobalt has no advantage, and in fact seems to be quite a detriment to the electrical capacity of the nickel hydrate. It would seem to us, and we would recommend, that we discontinue the adding of any Cobalt to the nickel sulphate solutions.

In accordance with your authority given to-day, we are adding to new batches of nickel sulphate, ~~now~~ only 1/10% of Cobalt, and we shall continue to do same until otherwise directed by you.

Will you kindly approve in writing this action so we may have same on record.

Yours very truly,

EDISON CHEMICAL WORKS.

JVM-11
Enclosure.

J. M. Van... Mgr.

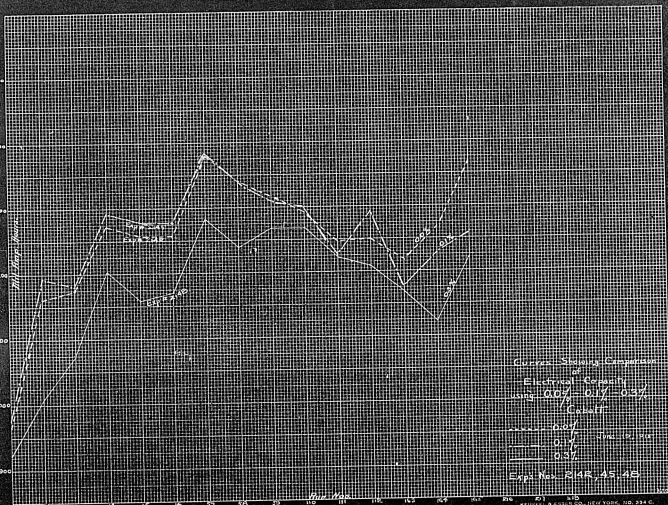
[ATTACHMENT/ENCLOSURE]

June 21st-1915.

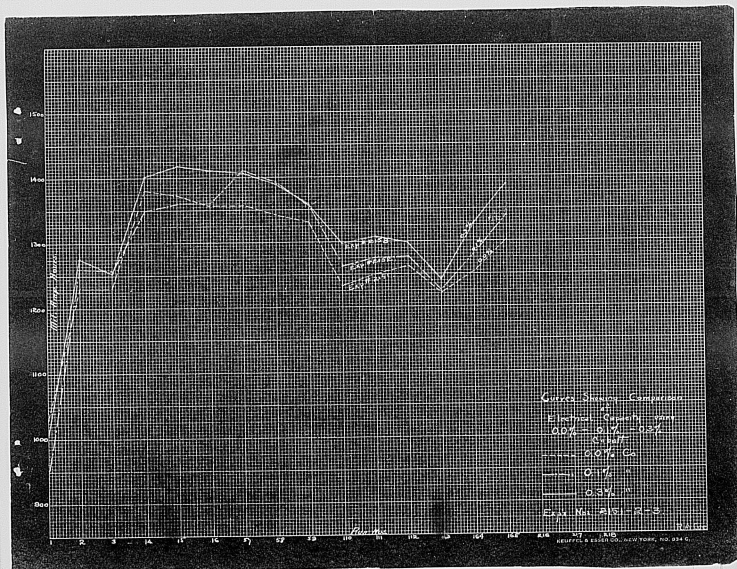
REGULAR AND EXPERIMENTAL NICKEL HYDRATES
EFFECT OF VARIOUS PERCENTS OF COBALT

MO.	CHART #1		CHART #2			CHART #3			
	2142	2145	2148	2151	2152	2155	725 Reg	5056 Reg	5359 Reg
% Co.	0.0	0.1	0.3	0.0	0.1	0.3	0.0	0.0	0.3
LD. WT.	7.804	7.850	7.803	7.619	7.675	7.647	7.520	7.437	7.691
Tube	545-7B	548-9B	550-1B	552-3B	554-5B	556-7B	9012-1B	1173-4R	737-8R
Run 1	957	973	923	1030	953	957	1057	923	1077
2	1163	1183	1107	1230	1260	1270	1200	1070	1197
3	1173	1180	1073	1230	1257	1253	1190	1253	1180
14	1323	1293	1253	1360	1350	1400		1297	1293
15	1307	1280	1213	1373	1360	1417		1387	1230
16	1307	1277	1220	1357	1360	1410		1383	1247
57	1330	1333	1333	1557	1420	1417		1390	1267
58	1343	1343	1290	1343	1333	1390	1280	1390	1307
59	1327	1320	1267	1333	1257	1357	1260	1363	1300
110	1293	1250	1267	1233	1267	1297		1353	1293
111	1247	1227	1223	1250	1260	1307	1370	1393	1267
112	1250	1293	1213	1263	1283	1297	1300	1410	1293
163	1217	1177	1167	1220	1223	1243	1323		1203
164	1257	1227	1173	1253	1290	1327	1323		1193
165	1367	1260	1220	1300	1340	1303	1357		1210
216									1180
217									1133
218									1173
221							1423		

[ATTACHMENT/ENCLOSURE]



[ATTACHMENT/ENCLOSURE]



2.

File
Mr. Edwain
11/30/15

Muller -

Turn over all your

Construction account # 2 Credits
to O'Lyke so he can return it
on his back - When it is
Convenient for you to do so

Σ

File
~~61-7~~

J V Miller

Rec'd 4/19/19

Sent up - 4/19

I find I can't come down
today but will do so
Monday

Send me up about
5 lb of ~~the~~ Crystals
of Ferrous Sulphate +
1 lb of dried Ferrous
Sulphate

also 1 lb of
Reg⁷² mix latest made

Simpkins will wait
for them

2



J. V. Miller

Please make in your
small apparatus
Several oz of 80 parts
of ferrous sulphate +
20 parts of Nickel Sulphate
less part hydrogen in solution
Evaporate the liquor
equivalent to NiO oxide
Reduce in Hydrogen
self heat & make up 4
of 5 gm Silver Lake packets
& send up to test.
Let me know results

Also another lot of
75 parts ferrous
Sulphate & 25 parts
of Magnesium Sulphate
mixed together & evaporate
ignite to oxide & reduce
in Hydrogen self heat
& make 4 5 gm
packets for test.

Edison

Laboratory,

JVM--970

Mr. Edison' Experiments.

June 4th 1919.

Mr. Cox,

Mr. Edison requested the following experiments to be made. Will you kindly make up the following experiments and advise:

Please make in your small apparatus several oz of 80 parts of Ferrous Sulphate & 20 parts of Nickel Sulphate both put together in solution
Evaporate to dryness
ignite to red oxide
Reduce in hydrogen
selfheat & make up 4 of 5 grm Silver Lake Pockets
and send up to test.
Let me know results.
also

another lot of 75 parts Ferrous Sulphate & 25 parts of Magnesium Sulphate
disolved together, evaporate
ignite to Oxide & Reduce in Hydrogen self heat
and make 4 5 grm pockets for test.

J.V.Miller,

Division M nager.

J. V. Miller - ✓

Iron reduced at 1000.
displacing hydrogen by
CO₂ is very fine - you
should make some test
runs -

Edison

10/6/19

read to

J V Miller



Here are 2 samples
of Fe_2O_3 by Carbonate
Methods -

Please note & Carry the
reagents on bottles thru
the process - Reduce
& send up in sealed
cans -


Edson

J. V. Miller Mail [Nov 4, 1910]

Tests of good NaOH
shows every thing is OK at
factory & it certainly is your
hydrate - You have probably
dried it at too high a temp

I have great difficulty in
getting it to neutralize
acetic acid, although an old
lot I found here neutralizes
it much faster -

2) $\frac{1}{2}$ wash dried low heat
Was the best all three the best
to date -



STANDARD

EDISON CHEMICAL WORKS DIVISION
EDISON STORAGE BATTERY CO.

FUNCTION—Mr. Thomas A. Edison,

MEMORANDUM NO. JVII-1223.

DATE Nov. 7th 1919.

SUBJECT—Iron Mix Approvals on 8th run.

It has been voted by the various committees concerned that we discontinue holding iron here at Silver Lake for the 16th run that passes requirements on the 8th run. The resolution is as follows :

Iron Mixes shall be passed on the 8th run, if same show electrical capacity of 1600 or better. Those mixes which are less than 1600 will be run until the 16th run and passed then if 1600 or better.

This is in accordance with the old standard, that is, we used to pass iron mix on the 8th run if 1600 or better. The result of this would be to cut down our inventory considerably, also to lessen the work in the Research Department.

If this is agreeable to you will you kindly put your O.K. on this sheet and return same to the writer,

Attached is a tabulation of ten mixes recently made which shows you the results which we are now obtaining.

J. V. Miller,
J. V. Miller
DIVISION MANAGER.

JVII-123.
Nov 10 1919
They can be passed on the Eighth Run
J. A. Edison

Copies to Mr. Sholes, Mr. O'Dair, Mr. Hunter, Mr. Dunn.

Edison Chemical Works Division
Silver Lake, N.J.

November 7, 1919

TO: Mr. Thomas A. Edison
FROM: Mr. J. V. Miller
SUBJECT: Iron Mix

The following tabulations show the capacity of 5 Gram Pockets on the 8th and 16th Runs for Ten Batches of Iron Mix made during the period between October 3rd and October 16th, 1919:

Mix Number	4934	4935	4936	4937	4938	4939	4943	4944	4945	4946
Ldg. Weight	22.4	25.2	22.3	23.2	23.7	24.1	23.6	24.2	23.3	23.8
Wt. per Dp.	.44	.47	.45	.46	.5	.52	.49	.51	.49	.47
8th Run	1780	1690	1760	1640	1735	1700	1770	1765	1785	1710
16th Run	*1680	1785	1820	1730	1780	1795	1855	1790	2115	1750

% above 1600 on 8th Run 100%

% " 1700 on 8th " 80%

% that failed to show gain on 16th over 8th Run 10%

*Duplicate pockets being run.

CPH:FTR

J. V. MILLER
Division Manager

Messrs. C. Sholes, O'Dair, Hunter, Dunn.

JVM---1253

Nov. 11th 1919.

Iron Mix Approvals on 8th run.

In answer to our letter to Mr. Edison of Nov. 7th, 1919, relative to passing Iron on the 8th run, would inform you that Mr. Edison has approved of this ruling and hereafter we will follow same.

The letter with Mr. Edison's Approval will be filed here at Silver Lake.

J.V. Miller,
Division Manager.

JVM-MG.

EDISON

EDISON CHEMICAL WORKS DIVISION
EDISON STORAGE BATTERY CO.

RECEIVED
Mr. Thomas A. Edison,
Orange, N.J.

MEMORANDUM - JVM---1239.

DATE Nov. 13, 1919.

SUBJECT Addition of Mercury to Iron Mix.

On February first last, we increased the percentage of dope in our Iron Mix to 4 $\frac{1}{2}$ %. Since then several tests have been run as to the relative value of 4 $\frac{1}{2}$ % as compared with 3%. Attached herewith are tabulations of the results of some of these tests. These show that the increase in Mercury makes scarcely any difference.

At our Manufacturing Committee Meeting it was recommended that we return to 3% dope and before we take such action we would like your approval. Will you kindly, therefore, place your approval on this letter and return same to the writer.

J. J. Miller,
Division Manager.

JVM-1239.

Nov 13 1919
I approve of the return to 3 per
Cent Mercury

Edison

COPIES TO - Mr. C.E. Sholes, Mr. O'Dair, Mr. Hunter & Mr. Dunn.
Tabulations of Experiments attached.

[ATTACHMENT/ENCLOSURE]

Tabulations showing effect of 3%, 3½% and 6% HgO on present Iron Mix.
Experiment No. 3069

Run No.	3%	3½%	6%	Run No.	3%	3½%	6%
1	1640 1740	1695 1600	1595 1630	89	1985 2000	1995 1980	1800 1875
3	1530 1675	1540 1495	1420 1490	91	2075 2000	1980 1860	1850 1860
6	962 962	750 950	760 750	94	1475 1462	1225 1312	1400 1225
8	1635 1630	1600 1600	1580, 1590	96	2085 2095	1925 1970	1870 1850
9	1870 1870	1860 1845	1775 1825	97	1950 1990	2065 1970	1785 1900
11	1790 1775	1750 1750	1600 1700	99	2050 2065	2050 1950	1675 1800
14	1375 1320	1000 1187	987 1000	102	1437 1425	1000 1250	1437 1000
16	1800 1800	1790 1790	1650 1700	104	2175 2185	2150 2175	1875 1975
17	1850 2275	1850 1800	1670 1875	105	1955 2035	2000 1950	1775 1760
19	1800 1880	1735 1735	1580 1735	107	2180 2190	2100 2155	2100 2100
22	1462 1462	1275 1462	1425 110	110	1500 1500	1050 1000	1500 1250
24	1845 1875	1900 1780	1715 1825	112	2040 2130	2000 2060	1890 1895
25	1745 1725	1740 1745	1730 1755	113	1990 2100	2100 1975	1770 1975
27	1900			115	2030 2000	1925 1885	1595 1800
30	1250 1175	1000 1175	950 1000	118	1850 1250	1300 1250	1800 1312
32	1855 1860	1850 1825	1625 1675	120	2030 2100	2050 2080	1900 1900
33	1970 1940	1895 1920	1775 1835	121	1900 1980	1900 1900	1700 1760
35	1795 1850	1845 1780	1675 1775	123	2000 2085	2015 1900	1800 1870
38	1500 1475	1337 1487	1337 1350	126	1037 1037	1300 912	1275 1312
40	2000 2000	1890 1880	1760 1775	128	2050 2085	2060 2000	1875 1885
41	2100 2000	2000 1955	1895 1950	129	2080 2090	2090 1900	1700 1795
43	1990 1990	1990 1890	1760 1800	131	1950 1975	1950 1800	1700 1800
46	1500 1362	1287 1462	1312 1230	134	875 1000	1250 750	1125 1062
48	2000 1950	1950 1950	1780 1870	136	2080 2080	2085 1950	1800 1955
49	2015 1900	1950 1900	1780 1825	137	2000 1975	2000 1900	1785 1900
51	2000 2000	1955 1960	1750 1850	139	2000 1995	1985 1900	1800 1800
54	1725 1687	1500 1725	1500 1575	142	1025 1062	1500 1125	1275 1250
56	2000 2025	2000 2000	1800 1880	144	2000 2000	2020 1900	1635 1900
57	1965 1995	2000 1980	1975 1845	145	1890 1900	1900 1875	1650 1690
59	1850 1985	1950 1915	1780 1820	147	1855 1895	1885 1650	1600 1700
62	1662 1662	1600 1600	1662 1500	150	1462 1487	1500 1500	1375 1450
64	2025 2085	2075 2035	1885 1925	152	2100 2100	2100 1975	1800 1975
65	2000 2075	2075 1985	1800 1895	153	1900 1800	1990 1730	1700 1680
67	1955 1900	1925 1900	1785 1795	155	1650 1690	1670 1600	1600 1625
70	1712 1700	1625 1737	1712 1500	158	1137 1162	1250 912	1050 1162
72	2085 2095	2085 2070	1875 1935	160	2100 2100	2100 1925	1800 1920
73	1960 2000	2025 1960	1800 1800	161	1780 1775	1790 1600	1580 1515
75	2200 2150	1500 1500	1450 1412	163	2015 2000	220 1825	1750 1800
78	1750 1700	1700 1700	1700 1612	166	1000 1050	1250 687	1050 1037
80	2000 2000	2035 2000	1860 1975	168	2140 2125	2130 1900	1800 1900
81	2000 2025	2040 2000	1900 1900	169	1970 1965	1990 1600	1610 1700
83	2000 2000	2000 2050	1840 1860	171	1975 1950	1985 1500	1600 1800
86	1687 1687	1587 1625	1587 1500	174	975 950	975 175	962 937
88	2200 2175	2180 2130	2000 2080	176	2080 2075	2070 1685	1675 1690

Cut out April 19, 1919.

[ATTACHMENT/ENCLOSURE]

Tabulations showing effect of 3% and 4.5% HgO on present Iron mix
Experiment #3095

Run No.	3%	4.5%
1	1600 1600	1540 1600
2	1200 1215	1200 1235
6	1037 1050	1025 1025
8	1350 1375	1425 1415
9	1575 1600	1700 1700
11	1390 1390	1375 1245
14	975 1000	962 975
16	1500 1485	1490 1480
17	1500 1500	1500 1500
19	1600 1500	1600 1625
22	1350 1350	1287 1312
24	1550 1555	1500 1540
25	1535 1500	1500 1535
27	1570 1500	1450 1500
30	1212 1225	1212 1137
32	1575 1675	1625 1650
33	1650 1675	1640 1660
35	1715 1725	1730 1740
38	1062 1000	1250 1250
40	1650 1660	1570 1650
41	1550 1550	1635 1680
43	1500 1500	1500 1500
46	1187 1212	1225 1187
48	1650 1680	1575 1545
49	1550 1460	1475 1400
51	1380 1390	1375 1385

Cut Out April 13, 1919.

Thomas A. Edison Laboratory,
Mr. Meadowcroft.

JVM---1237

Nov. 13th 1919.

Orders for Mr. Edison.

Dear Mr. Meadowcroft,

There has been some confusion as to the authority of ordering material from us on the strength of "Mr. Edison wants some immediately". At the meeting of the Manufacturing Committee today the matter was brought up and I made the following decision.

That any orders bonafide from Mr. Edison for material should be put through without any formal order or requisition and sent to Mr. Edison at the earliest possible time in which we can get out the material, not sacrificing quality, however.

That no orders should be accepted by telephone or otherwise to do work on the supposition that it is for Mr. Edison, unless the said order comes through you.

Will you therefore, hereafter, forward to us any orders for material for Mr. Edison or accept and approve of any orders or requisitions telephoned or sent to us by other parties said to be ordering for Mr. Edison.

Unless we hear from you to the contrary, this will be the ruling we shall make.

J.V. Miller,
Division Manager.

Mr. Hunter and Mr. Burrows.

JV Miller - Mark

1519

You could be very
careful to get all
the iron out of your

Nickel sulfate, ~~etc.~~

+ Electrolysis in water

etc - That necessary

stuff prevents one

piece of $Ni(OH)_2$ from
making good electrical
contact with another piece - 2

2
We have found that
out in cooperation -

Try a batch + I think
it will come up on
3rd Run -

TKE

~~XXXXXXXXXX~~

[Sept 14, 1920]

J. J. Miller

Please for me ~~the~~
Names of men in Wax
Dept. ~~of~~ up to & including
Managers ~~which~~ employed at
→ Their hourly rate
& with weekly men their
weekly rate

Also payroll names
hourly & weekly rate
& what they do in
Storage Battery
Payroll

Edwin

JVM--1820.
Sept. 18, 1920.

TO: Mr. Thomas A. Edison, Orange, N.J.
J.V. Miller, Edison Chemical Works Division.

FR:

RE: Our using Nickel Disc Strippings.

I talked this matter over with Mr. Hunter and he seemed to think this would dissolve extremely slowly. My idea was that we might put it in our dissolving tanks with Reduced Nickel and gradually use it up, but Mr. Hunter thinks this would take a very long time.

Why could not this material as well as any very poor quality of reclaimed scrap flake be sent to Goldsmiths' Foundry in Newark and made into Nickel Anodes, and used at the Storage Battery Company.

If you think that this would dissolve readily we would be very glad to take it at once and use it up in our dissolving tanks. Also that Nickel Powder you saw at our melting furnace could be sent to Newark and made into anodes.

Why should Mr Hunter think "it
would dissolve slowly. Why dont
he try it,

J.V. Miller,
Acting Division Manager.

We use it here & have no trouble
to dissolve it, its not like shot

Ni ———



J. V. Miller

Rec'd
10/13/20

I understand you ordered
a Motor from Depkeman
did you find out if we had
any of the type you wanted
on hand

Edison

TO—Mr. T.A. Edison, Orange, N.J.

MEMORANDUM NO. VLI—1867.

DATE Oct. 13, 1920.

SUBJECT—Note received this morning - order for motor.

We desired a motor 35 H.P. for #5 Proctor Dryer. A requisition for same was made out and sent to the Purchasing Department of the Storage Battery Company, Mr. F. Evans. Across the face of this order I wrote "try all Edison Divisions" .

Mr. Evans made inquiries and located a 35 H.P. Motor at the Disc Record Division and that is the motor which we are to use.

I believe this covers the information you desire. We are endeavoring to cut out all purchases of material and equipment from outside and trying to pick up from the other Interests any material we need.

This is OK - but my investigation

J. V. Miller,
Division Manager.

*Shows that a single division has a
correct inventory of what it has
& this includes Salvage*

Edison

F V Miller



I need two wood tanks
lined with lead
5X4 or nearest thereto

Can you find them -

Could use Steel Tanks
lead lined -

Will have to put a few
turns of lead pipe in
Each -

Received
10/15 - 4:30 P.M.

J. O. Miller & Co.

How much would it
cost to attach pump &
get cooling water
from well —

You have a pump
You can get by suction

Saving would be
6 to 8 dollars per
day —

Note 50 cents 1000 ^{Cubic} ft

MEMORANDUM
THOMAS A. EDISON INDUSTRIES

MR.

*J. Miller.*DATE *Oct 15-20**Based on 2000 cells per day*AVOID VERBAL MESSAGES
CONFIRM VERBAL UNDERSTANDINGS

FUNCTION

*Following places about plant where well water
can be used without coming in contact
with materials used in process -*

<i>Bldg</i>	<i>Operation</i>	<i>Rate per hr</i>
<i>29</i>	<i>Truck bottles</i>	<i>468 L</i>
<i>113</i>	<i>Cooling coils</i>	<i>1584 L</i>
<i>112</i>	<i>Truck bottles</i>	<i>460 L</i>
<i>Total</i>		<i>2512</i>
		<i>3.78</i>

= 634 gal per hr

*634 x 24 = 15312 gal per 24 hr - *Ed. Custer**

15312 ÷ 7.48 = 2047 cu ft " "

*Well
Water*

Laboratory.

October 16, 1920.

Messrs Fagan,
Lahr,
Miller, J.V.
Pullen,
Nicolai,
Sanborn.

Mr. Edison wishes me to ascertain if your
use any city water direct for purposes for which well
water would answer just as well.

Will you reply as quickly as possible on
this sheet.

W. H. MEADOWCROFT

W.H.M.

Meadocraft
Find out the new rate for
for City water that we
must pay

634-
600
920

Mr Edison:

At Silver Lake they are paying 80 cents per 1000 cu. feet

Nicolai's report attached tells about prices for
in Orange + West Orange.

Meadocraft

Oct. 19, 1920.

Mr. W. Meadowcroft,
Laboratory.

Subject:- Cost, of City Water.

The Orange City Water is billed to us on a sliding scale of prices according to the service and consumption. Below are figures showing the cost of Orange Water for the month of September 1920.

Water supplied to E.P. Wks' Buildings for drinking purposes, 527,250 gallons at a cost of .181 per M gallons. ^{PLATING}

Water supplied to the Pumping Station to increase the pressure of our water, 1,227,000 gallons at a cost of .14 per M gallons.

Water supplied to the Boiler Plant, Engine Room, and Disc Re-Creation Division, 13,284,750 gallons at a cost of .1133 per M. Gallons.

The cost of Orange Water previous to July 1, 1920 was .10 per M Gallons.

The West Orange Water Co. bill us for the total amount of water consumed on all services from them on a sliding scale of prices according to the total consumption of these services.

During the month of September we consumed 2,455,500 gallons and the average cost of this water was .19063 per M gallons.

This Company has been granted an increase of 25% on their old rates beginning October 1st, which will increase the above figures to about .24 per M Gallons.

Construction & Maintenance Service Division

Nicolai
Division Manager.





MEMORANDUM FOR MR. THOMAS A. EDISON, Orange, N.J.

MEMORANDUM NO. JVI-1877.

FROM: J. V. Miller, Edison Chemical Works Division.
SUBJECT: Wax Department.

DATE: Oct. 19, 1920.

*WE once used oil in the moulds
to prevent adherence, I suppose
present wax does not adhere.*

Your note received October 18, 1920.

The wax shaved off the rough cylinders in the rough turning machine is collected through pipes and an exhaust fan into a cyclone dust collector. Same is emptied periodically and the wax remelted. I believe there is no loss here whatsoever, except possibly a very slight amount which clings to the tables or floor. Some days when the temperature in the rooms goes too high, the wax becomes somewhat sticky and the exhaustor does not pick up all the wax. This falls on the table and floor but is entirely recovered and remelted.

In regard to the first item in your note "wax is lost in moulding due to use of oil in the moulds", I do not quite understand. I believe there is no oil used in the moulds directly and Mr. Merrillman does not understand this question. In general, however, there is practically no loss of wax in the department as everything is recovered by exhaustors and remelted.

J. V. Miller,

J. V. Miller
Division Manager.

JVI-180.

Mr. Miller -

Had you get wind of a
low priced machine
separator?

How did you succeed
in disposing the lot in
the dump?

How have the block in
London on a growing
Economist

Do you really need
the belt you ask

2.

...
...
Cutting down investments
Can't the construction
be postponed

Can't you give me a
list of all the ...
& other things in progress
unperished, + some
estimate of cost +
of the necessity therefore

S

MEMORANDUM
THOMAS A. EDISON INDUSTRIESDATE Nov-9-20-MR. J. MillerAVOID VERBAL MESSAGES
CONFIRM VERBAL UNDERSTANDINGS

FUNCTION

Re Potash Shipment P 2Comparison of analysis Silver Lake
to Orange

Sample No	Alk	KOH	M ₂ CO ₃	Kal				
1	86.9	88.58	82.87	84.03	50.1	53.6	17.0	14.5
5	85.34	87.92	81.44	81.85	48.4	562	1.51	1.84
8	92.01	88.63	85.76	82.75	42.3	626	1.43	1.34
10	89.02	88.58	85.15	82.66	38.3	606	1.57	1.41
12	89.62	88.47	85.26	82.01	52.4	488	1.42	1.38

passed with Request -
JWCJ. Miller

171-204-2-20
OLD 2787

ANALYSIS CARD
SILVER LAKE LABORATORY
Thomas A. Edison

SAMPLE OF *Solid KOH*

ANALYSIS No. *6936*

RESULTS

Date received *11/2/20*
 Sampled by *Waw Houten*
 Marks *P-2*
56 Drums
 From _____
 Shop order No. *77.15*
 Reported *11/9/20*
 Checked by *R.A.D.*
 Remarks _____

	DETERMINATIONS				PER CENT
	KOH	K ₂ CO ₃	KCl	T.A.	
1	82.87	-5.01	1.78	86.94	<i>Al₂O₃</i> .041
2	84.90	-5.01	1.83	87.72	
3	84.19	6.95	1.50	89.79	<i>SiO₂</i> .128
4	82.87	5.14	1.76	86.94	
5	81.42	-4.84	1.31	85.34	<i>K₂SO₄</i> .1096
6	84.24	6.90	1.23	89.85	
7	84.23	6.97	1.18	88.30	<i>KClO₄</i> .0139
8	85.76	5.23	1.43	90.01	
9	86.05	-2.25	1.79	89.59	<i>Mw</i> .0075
10	85.15	-2.83	1.57	89.48	
11	84.24	6.88	1.42	89.55	
12	85.26	5.24	1.42	89.32	

Jardner & Kass
 THE ABOVE FIGURES ARE THE RESULTS OF MY WORK



67

November 20, 1920.

FROM: W. H. Ulrich

TO: F. W. Cunningham

SUBJECT: Acceptance of Potash Baton Silver Lake No. P-2
for Use in Dry Mixture Electrolyte.

Herewith please find report on Silver Lake Analyses
No. 7008 of 58 Drums of Caustic Potash.

Of these analyses, those marked with a red check
are higher in carbonate than is allowed by Mr. Edison's spec-
ification limit of 6.5%. Since there are only five such
lots in the whole shipment and if these are properly pro-
portioned to the different grinding batches, the resulting
ground lots should be well within specification. No figure
is at hand to indicate how much carbonate is taken on, dur-
ing grinding, but judging from analyses of Ground Potash
submitted by the Repair Dept. from time to time, no appreci-
able increase is noted as compared with analyses of Potash
as received from dealers. Mr. Hunter has been requested to
obtain some definite information along these lines.

In the case of Chloride those marked with a red
check are higher than specification limit of 1.5%. This shows
a majority high. The highest is 1.96% for No. 50. Consid-
ering the specification of 0.5% KCl on 21% electrolyte, 2.1%
KCl could be allowed on 80% Potash in an emergency without
exceeding the limit in solution.

As it is understood that there is an urgent demand
for Ground Potash, it is recommended that this Potash be
Ground up and used for packing Dry Mixture.

W. H. Ulrich
W. H. Ulrich.

cc:
Eng. File
Chem. Lab. File
File.

W. H. Ulrich
C. P.

Mr. Thomas A. Edison, Orange, N.J.

JVM—1950.

Nov. 29, 1920.

Answering your note received this morning.

1st Item - "What kind of graphite is it you want to dispose of."
This is a lot of graphite which we recovered from old Nickel Hydrate Mix. Same has been around here for years and we have made several attempts to sell same, but have never been offered anything but two or three cents a pound. It is quite finely powdered and not absolutely free from grit. We have tried to sell it to paint people, Dixons, Gautier, etc., without success.

2nd Item - Disposal of parts of Proctor Dryer -
Possibly you refer to an item in our minutes where we refer to the disposal of old type drying pan cars.
These cars are for 28 pans where the present time we are using cars suitable for 44 pans.

We shall discontinue any further efforts to dispose of these and hold them for your decision.

J.V. Miller,

Division Manager.

JVM-MG.

[ATTACHMENT/ENCLOSURE]

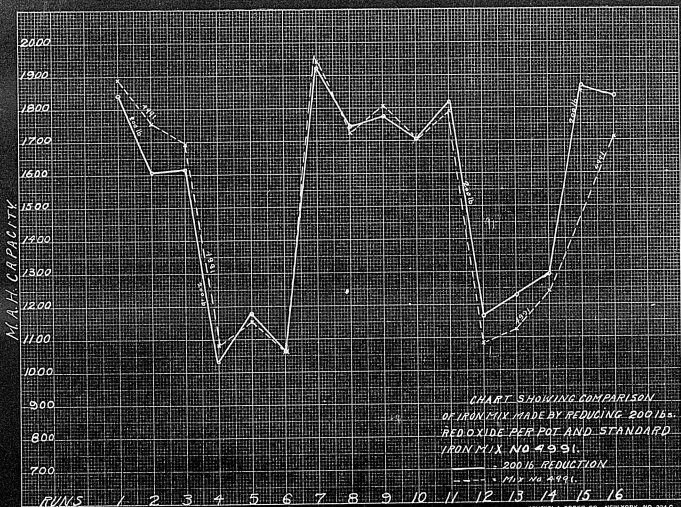
Sheet showing physical and electrical data
on 200 lb. pot reduction Iron Mix made
by reducing 200 lbs. red oxide per pot.

Experiment No.	3294	3296	3297	3310	3311	3312
% Fe	83.915	84.187	86.154	86.488	86.176	86.112
% Mn/Fe	.0061	.0009	.0011	.0061	.0036	.0084
% S	.0223	.0213	.0191	.0149	.0179	.0210
Time of reduction	19 hrs.	19 1/2 hrs.	22 1/2 hrs.	25 1/2 hrs.	26 1/2 hrs.	30 hr.
Temp. " "	1215°F	1215°F	1215	1215	1215	1215
Time of self-vent	31 1/2	30 1/2	25 1/2	29	29	29
Temp. of " "	125	125	120	120	120	120
Table No.	4A	4A	1A	4B	4B	4B
L.W. of I by II	18.2	20.5	19.9	21.1	19.7	21.5
Pocket Weight	8.53	8.43	8.40	8.38	8.45	8.55
Dump " "	.459	.527	.528	.502	.512	.540
Screen Test						
On 55	.00	.10	.30	1.10	.60	1.80
" 40	2.00	3.35	5.00	6.35	4.85	6.25
" 65	6.95	8.50	9.40	7.80	8.55	9.50
" 100	8.20	9.60	10.25	9.40	9.40	11.55
" 150	8.10	8.80	7.40	6.20	6.45	6.95
Through	74.25	69.75	67.25	69.75	70.25	64.05

HRHS	Av.	1	1763	1803	1800	1910	1953	1860
"	"	2	1800	1850	1835	1875	1833	1835
"	"	3	1485	1560	1566	1706	1708	1676
"	"	4	1019	983	932	1100	1119	1086
"	"	5	1088	1157	1219	1144	1219	1137
"	"	6	1213	938	900	1070	1182	1094
"	"	7	1068	2180	2200	1750	1770	1800
"	"	8	1720	1765	1768	1725	1720	1768
"	"	9	1778	1690	1938	1680	1650	1720
"	"	10	1710	1755	1800	1638	1643	1720
"	"	11	1695	1765	1825	1800	1803	1845
"	"	12	1682	1198	1188	1126	1212	1310
"	"	13	1225	1225	1222	1144	1263	1282
"	"	14	1369	1313	1301	1176	1238	1301
"	"	15	2018	1788	1775	1830	1873	1972
"	"	16	1843	1795	1783	1888	1860	1885

21.3
18.2
13.7
11.2

[ATTACHMENT/ENCLOSURE]



WEEKLY STATISTICAL REPORT OF OPERATIONS

EDISON CHEMICAL WORKS DIVISION
EDISON STORAGE BATTERY CO.

REPORT FOR WEEK ENDING December 25, 190

PRODUCT	Unit	PRODUCTION			STOCK		SHIPMENTS	
		This Week	Last Week	Same Week Last Year	ON HAND	This Week	Last Week	Same Week Last Year
DATE	Quantity	12-25-20	12-18-20	12-27-19	12-25-20	12-25-20	12-18-20	12-27-19
Iron Mix—Small	Lbs.	-	-	9887	109301	135	2754	9249
Iron Mix—General	Lbs.	-	-	-	-	-	-	-
Hypo	Lbs.	-	-	-	1200	-	-	2560
Nickel Hydrate	Lbs.	29434	17138	12378	94887	90	47866	10958
Electrolyte—33% Potash	Lbs.	-	-	-	484	-	-	1905
Electrolyte—25% Soda	Lbs.	-	-	-	-	-	-	-
Nickel Anodes—Curved	Lbs.	-	-	-	-	-	-	-
Distilled Water	Gal.	-	-	-	-	-	-	-
Evaporator No. 1 Grade	Lbs.	-	4200	-	4988	-	-	-
Hydroxide Solution	Lbs.	260	-	-	2500	880	1385	-
Safetee 100	Pc.	-	-	-	-	-	-	-
Recording	Pc.	-	-	-	-	-	-	-
Disc Master	Pc.	-	-	-	-	-	-	-
Cylinder Master	Pc.	-	-	-	-	-	-	-
Phenol Resin	Lbs.	-	-	-	-	-	-	-
Electro Pl. Paint	Gal.	-	-	-	-	-	-	-
Germicide Paper	Pc.	-	-	-	-	-	-	-

PAY ROLL					EMPLOYEES		
		12-16-20	12-11-20	12-20-19			
		12-18-20	12-11-20	12-20-19			
Cost of Work in Process	P. F. Wagon	\$ 139.12	149.28		Total P.F.	35	40
Cost of Work in Process	Chem.	\$ 389.03	506.79	1770.50	Total	53	53
Manufacturing Expenses	P. F. Wagon	\$ 1247.83	1191.08		End of Week	35	35
Manufacturing Expenses	Chem.	\$ 716.79	886.71	1222.30	End of Week	53	53
Investment	P. F. Wagon	\$ 3.60	23.35				
Investment	Chem.	\$ 895.76	488.30	44.94			
Total Labor	P. F. Wagon	\$ 1389.55	1363.71				
Total Labor	Chem.	\$ 1691.60	1581.80	3037.74			
		3081.15	2945.51				

BILLS RECEIVED					NET SALES		
		12-25-20	12-18-20	12-27-19			
Amount	Wax				Amount		
Amount	Chem.	20384.37	10946.05	738.75	Amount		

NOTE REMARKS ON REVERSE SIDE

Shipments Bank and/or 12-26-20

<u>Iron Pix</u>		<u>Nickel Hydrate</u>	
5252	20	1289	10
5253	20	1290	10
5254	20	1291	10
5255	20	"	10
5256	20	Exp.	10
5257	20	"	10
5258	20	"	10
	<u>15</u>	"	10
	195	"	<u>10</u>
			90

61-Tests
x Edison

F U Miller -

Hereafter send three test
crosses up 2 made in

Regular way & one
small piece & not

Corrugated & tell the
man up there, & boy who assembles.

Edison

Batch # 2046 etc -

W. Miller —

When you get time
Come over see me about
a new drying oven
I have —

W. Miller

JV Miles —

Record tests show Brown mix
should all go thru 20 mesh
its better than 30 mesh —
anything coarser than these
meshes dont show high
results —

}

JA
What is size of screen in
#10

30 mesh -
Xo

F O Miller

Give me approximate estimate
of furnaces, tanks Dryers -
everything except buildings
for an additional Capacity
of 1500 A4 cells daily
above the 1000 Reg cells

Also give me floor
space in buildings
required -

Approximate roughly the
Costs of the increased
apparatus

E. J. ...

File

J. H. Miller

John Manville Co

Make a lute of Magnesia Oxide
dilute of Soda & Alumina
which ~~will~~ does not shrink
up to 1600 deg Fahr used for
luting - 2 on each cover
Edges of Iron reduction pot
so never leak. ~~Wear~~ Wear
or Oxidize to any appreciable
Extent

Edison

**Special Collections Series -- Chemical Production Records
Edison Chemical Works Records
C. F. Hunter Papers (1914-1926)**

These documents consist primarily of technical notes, reports, and interoffice communications exchanged between Edison and Charles Francis (Frank) Hunter, superintendent of the Edison Chemical Works, a division of the Edison Storage Battery Co. Also included are technical reports and recommendations prepared for Hunter, which he forwarded to Edison for approval. The dated items cover the years 1914, 1918, and 1920-1926. There are a number of undated notes exchanged between Edison and Hunter, probably during the period 1921-1926. Other ESBCo engineers and experimenters mentioned in the documents include G. J. Abrams, Joseph P. Burke, Henry C. Egerton, Paul B. Kasakove, Harry C. Leonard, Benjamin F. Morris, Walter H. Patterson, and Francis S. Schimerka, along with company superintendent James F. Monahan and vice president and general manager Frank D. Fagan.

The documents pertain primarily to the manufacture of the iron and nickel mixes used in Edison's storage batteries, including tests of new processes, equipment modifications, and cost reduction issues. There are references to the nickel hydrate filter process, the acquisition of a Dorr Classifier and a Swenson-Walker Continuous Crystallizer, the use of reclaimed iron, and the activities of the Orange-Silver Lake technical committee. Some of the notes in Edison's handwriting have been stamped on the back with the date and the notation "Edison Storage Battery Co. Edison Chemical Works Division."

Approximately 80 percent of the documents have been selected, including all those indicating Edison's personal decision-making and oversight of operations. Not selected are documents containing only test data or routine daily information or items dating from later years when Edison no longer played a direct role in management.

CS 497, 1943

Memo #57

Almeida C. L. Hunt

249 }
250 } Ferrous Ammonium Sulphate
251 }
252 } Iron yeast up

Processed in press. + separated
& screened then 10 mesh

Make up 2, 5 gram packets
Each number

Then take balance up to
Waks & personally see if
it feeds ok & make 2
8 @ 9 gram packets &
set these up also on
test

2

EDISON CHEMICAL WORKS

Report of week ending January 5, 1918.Aug 1 and Aug 8.

Average Results of Mix Nos.	Loading Weight		1st Run at 300 to 1V		6th at 750 to 1V		8th at 300 to 1V			
	Gen.	Reg.	Gen.	Reg.	Gen.	Reg.	Gen.	Reg.		
Lowest	26.5	22.8		1625	710	750	1156	1250	1658	1751
Highest	28.1	26		1765	1538	1187	1331	1560	1845	1820
Average	27.2	25		1688	1813	935	1270	1477	1733	1795

IRON
To Orange

Regular as made E. C. W.

4277 -26.5
4277R-28.1
4276R-----
4278 -26.9

Average Results of 20 Batches-Nos. 1153 to 1190 Incl.

NICKEL ^{To Orange}
#1-192-193-194 195 196 197 198

	Loading Weight	3rd Run at 200	16th Run at 200			
Lowest	7.505	7688	1123	1128	1193	1272
Highest	7.780	7692	1253	1182	1310	1272
Average	7.677	7690	1183	1165	1254	1272

Remarks on reverse side

Notes: ^{if the} lots are mixed when necessary
to give correct loading weight.

EXPERIMENTS

NEEMEL.

None.

IRON.

2895. Duplicate of Exp.No. 2809.

Purpose-To see effect of As, Arsenic, on iron mix.

General-Iron.

Detail -Make batch of iron sulphate so that finished mix contains, .05% .1% .25% As.

2896. Duplicate of Exp. No. 2810.

Purpose-To see effect of Carbon on iron mix.

General-Iron.

Detail -Make batch of iron sulphate so that finished mix contains; .05% .1% .25% Carbon.

2897.

Purpose-To see effect of C2 at different Sp.Grs.

General-Iron, crystals.

Detail -Use No. 1 crystals redissolved and make to gravity of 1395 at 95° with least amount of boiling. Make three experiments 2897 -1 -2 -3. All batches to be run off at room temp. noting hours stood and temp. on sheet.

2898.

Purpose-To see effect of C2 at different Sp.Grs.

General-Iron, crystals.

Detail -Use No. 1 crystals redissolve and make to gravity of 1325 at 95 with least amount of boiling. Make 3 experiments 2898-1 -2 -3. All batches to be run off at room temp. noting hours stood and temp. on sheet.

2899.

Purpose-To see effect of C2 at different Sp.Grs.

General-Iron, crystals.

Detail -Use No.1 crystals redissolve and make to gravity of 1250 at 95 with least amount of boiling. Make 3 experiments 2899-1 -2 -3. All batches to be run off at room temp. noting hours stood and temp.

3000.

Purpose-To see effect of dissolving iron in H2SO4 at 1100 S.g. at 60°.

General-Iron, dissolving.

Detail -Make up batch of C.V. 1100 at 60 in 29 blg. and put through regular process.

3001.

Purpose-To see effect of Selenium in iron mix.

General-Iron.

Detail -Make batch of iron sulphate so that finished mix contains .05% .1% .25% Selenium.

Duplicate of Exp. 2811.

[ATTACHMENT/ENCLOSURE]

Hunter

Please explain
this to me I can't
understand

Sharon

Jan 10-20

Hunter —

We will need places
to test (30) fifty cells
of Ni(OH)₂ & 50 places
for Iron cells —

Now is your time to get
from Orange Research
dept. What tables you
require & also other
necessary accessories
& appliances & have them
to S. Lake. Also one loading
Machine for Mahel
& if you haven't got that

loader already for
5 gun packets get
the one from Orange
also the regular iron
packet loader —

We will not be running
this week so now is
your chance to
get the stuff & set
it up this week

S

TO: Thomas A. Edison,

RE: Use of Old & Reclaimed Iron Mix

DATE: October 27th 1920.

Respectfully submit, for your approval following mixtures of Iron Mix to be shipped to Storage Battery Company for use in Manufacture of regular production cells, provided that such iron passes all electrical and mechanical specifications.

SCHEME # 1	To use	-----	New Iron Mix	85 %	
			Reclaimed Iron	15 %	100 %
SCHEME # 2	To use	-----	New Iron Mix	80 %	
			Reclaimed Iron	10 %	
			Old Iron Mix	10 %	100 %
SCHEME # 3	To use	-----	New Iron Mix	78 %	
			Reclaimed Iron	10 %	
			Old Iron Mix	10 %	
			Blower dust Mix	2 %	100 %
In reference to above at present using,			New Iron Mix	85 %	
			Reclaimed Iron	10 %	
			Old Iron Mix	5 %	100 %

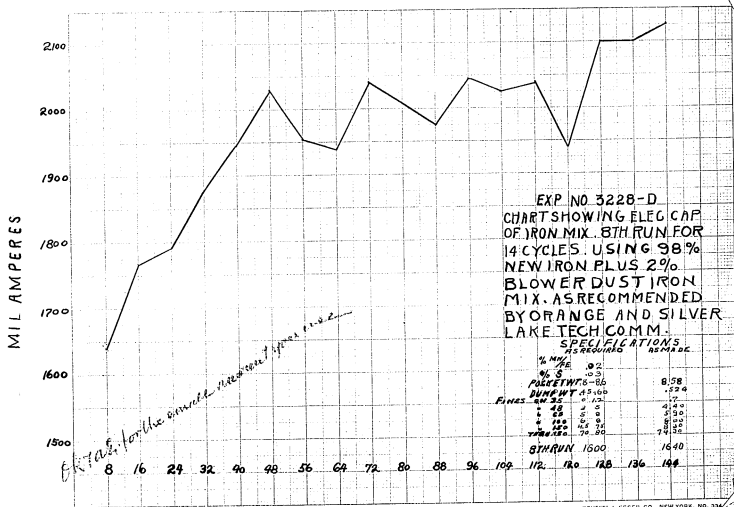
The term "Old Iron" as used here denotes iron mix on hand with low electrical capacity due to high manganese content.

Accompanying data sheets and charts show electrical and mechanical results of tests made in relation to above.

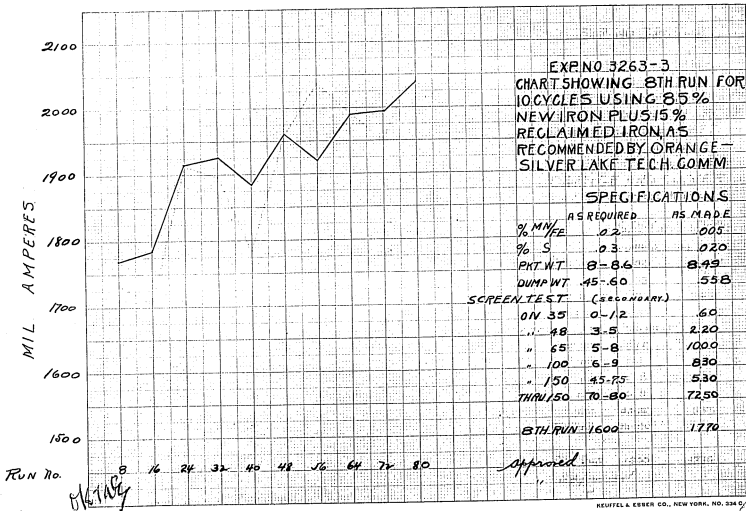
OK to use - Oct 28/1920
JAL

C. F. Hunter, Chairman,
Grand Silver Lake Tech. Comm.

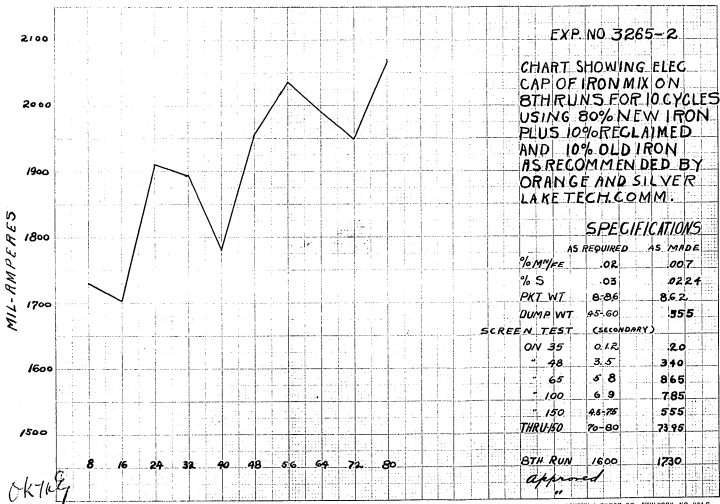
[ATTACHMENT/ENCLOSURE]



[ATTACHMENT/ENCLOSURE]



[ATTACHMENT/ENCLOSURE]



C January 25, 1921

Hunter =

In settling we want to get
the smallest amount of
water in the settling

If you figure at 12500 L
is only a little different
from 7,500.

Suppose you try more
~~Concentrated~~ Solutions
of soda & N₂

Hunter

You should use more concentrated solutions of NiSO_4 & NaOH , so not to have too bulky a solution.

You could in fact using NiSO_4 very concentrated precipitate it & by using a stirrer & Gail get a mush so you would not have to settle at all - but add the right

(2)

amount of soda in excess that when you filter pressed ~~the~~ excess water water. The water in the cake would have the right amount of excess soda to give 1300 ml amp out short tube. If this isn't understood come up & see me.

E

Hunter

Mr. Edison:

*Recd me samples
percolated & dry af*

Mr. Hunter's report for Wednesday and Thursday, 16th and 17th Feb.

quotes following:

these -

Exp. 3398

Strong Soda Stron Ni SO4
Boiled - Filtered off 60%

Exp. 3399

Strong Soda Strong Ni SO4
Not boiled. Filtered off 60%

SUBMITTING SAMPLES OF SALTS:

THESE SAMPLES ARE HANDLED BY THE LABORATORY.

E



*Samples sent Feb 27/21
10.35*

Hay

Hunter

Send up 23 pounds
of Dry ferrous
Sulphate we use
Regular -

Elmer

Telephoned above 9.35 am
Mar. 1, 1921.

E. P. Ryan

April 2, 1921.
GMH-----2105



TO: E.A. Edison,
FROM: C.F. Hunter, Edison Chemical Works Division.
SUB: Stock of Iron and Nickel on Hand.

Your memo re stock of Nickel and Iron on hand at rate of 700 Cells per day 5 1/2 day basis, submit following data:

No. of cells per day	No of Days	No of Cells per week	Lbs. material per week.	
700	5 1/2	3650	8655 10200	Iron Nickel

On the Iron side we have as follows:

Where located	Contained	No. of lbs.	Weeks Supply	TOTAL
Orange	In drums	32177	3.65	
Orange	In plates	26146	2.95	
Silver Lake	In drums	47346	5.34	11.94

On the Nickel side we have as follows:

Where located	Contained	No. of lbs.	Weeks Supply	TOTAL
Orange	In drums	24641	2.4	
Orange	In plates	10541	1.	
Silver Lake	In drums	79465	7.79	11.19

In connection with this supply we must carry four (4) weeks supply as reserve, this would cut actual total down, on Iron side to 7.9 weeks on Ni. side to 7.1 weeks.

Another point in question would be are 2.95 weeks supply carried in plates at Orange a legitimate source of supply. As I understand they can be used only for making A4 Cells. If not would reduce Iron supply to 5 weeks.

Better Come up 4 weeks more
C. F. HUNTER, Plant Superintendent.

GMH-36
Copy to F.D. Egan.



Hunter - Chances of getting

2" plates are small & don't want to buy or get

APR 6, 1921

TO: C.H. Henderson, *More than 2 presses*
FROM: C.A. Hunter, Special Chemicals Division
SUB: Filter Press.

will have to work the pressmen longer -

Confirming phone conversation of April 5, 1921, whose note

following:

+ get at them 2 presses

Press must be of iron, therefore of iron

think we can get 1 1/2

Presses:

3	Presses	43	frames	36" x 36" x 1"
2	Presses	35	frames	36" x 36" x 2"
3	Presses	31	frames	42" x 42" x 1"
2	Presses	33	frames	42" x 42" x 2"

3

Would recommend that effort be made to buy 36" frames as press

builders do not guarantee presses over this size to stand more than 75 lbs.

pressure and we will have to use at least 60 to 100 lbs. pressure.

*Mr. Edison
I ask for Hunter for
this information -
necessary*

C. F. HENNER
C. F. Hunter
Plant Superintendent.

April 20, 1921.
OSM---2134.

TO: W.A. Edison,
FROM: C.F. Hunter, Edison Chemical Section Division.
RE: Nickel Hydrate - Filter Press Process.

Am submitting to you for approval the following process for making Nickel Hydrate to be used as active material by the Edison Storage Battery Company, at Orange, N.J.

PROCESSES - To make batch of 4000 lbs. Nickel Hydrate.

Use 5416.22 liters of Caustic Soda at 500 grams per liter.

Allow this soda to run into Precipitating Tank and bring to violent boil,

Then add slowly into boiling soda 8769.39 liters of Nickel Sulphate at 151 grams per liter.

Keep mixture boiling while Nickel Sulphate is running in.

Continue boiling until the hours have elapsed from start of flow of Nickel Sulphate into soda.

At end of two hours must measure 12000 liters, and must contain 50 grams plus or minus 5 grams per liter free caustic soda.

Now run to filter press and remove by filtration sixty (60) per cent by volume of batch or 7300 liters.

The forty (40) per cent residue or 4500 liters to be removed from press and dried in regular manner as heretofore used in previous process.

This approval is warranted on the results of following experiments:

1st.	3306	3307	3308	3309	3310	3311	3312	3313	3314	3315	3316
1st Run	7.56	7.55	7.50	7.75	7.85	7.75	7.55	7.55	7.55	7.51	7.55
3rd Run	1278	1312	1342	1160	1101	1250	1175	1215	1194	1214	1237
16th "	1325	1319	1364	1220	1252	1277	1239	1324			

1st.	3408	3409	3410	3411	3412	3413	3414	3415	3416
1st Run	7.54	7.50	7.46	7.55	7.69	7.50	7.46	7.40	7.47
3rd Run	1269	1275	1276	1259	1259	1227	1272	1250	1214
16th Run	1350	1342	1337	1280	1320	1292	1305	1337	1261

The general average of above experiments show following results:

1st Run	7.52
3rd Run	1240
16th Run	1306

April 30, 1921.

2

TO: W. H. Wilson,
FRANCIS & Hunter, Edison Chemical Works Division.
SUB: Nickel Hydrate - Filter Press Process.

All above tests made on short 7.5 Nickel Tubes.

The long tubes 16.2 grams were tried out and reported as follows by
Research Department:

" Herewith are the results of 6 long tubes tested on long tube schedule here.

Received from Mr. Leonard at 10 A.M. 3-26-21 6 Long tubes on Exp. 3623
Hydrate for test as long tubes.

Charge 15 hours at 200 H.A. Discharge to 0.9 volts at 250 H.A.

Electrolyte
21% H₂O₂ 11.25 gm/liter LiOH

TUBES	1	2	3	4	Total Grams		8	Average
					5	6		
1	1529	1556	1517	1495	1575	1525	1575	1557
2	1717	1708	1715	1721	1742	1754	1758	1731
3	1742	1702	1687	1729	1753	1751	1741	1735
4	1729	1700	1691	1717	1753	1759	1755	1732
5	1691	1679	1671	1687	1708	1700	1657	1655
6	1691	1675	1667	1655	1691	1657	1675	1658
7	1725	1705	1691	1721	1743	1742	1721	1746
8	1725	1708	1700	1742	1738	1749	1751	1735
16	1800	1725	1775	1812	1788	1800	1795	1795

On April 6th after run 7, an examination was made of all cells.
As previously reported this showed - no split tubes, no flared sections,
clean tubes and practically no sediment.

Some variation in capacity due to poor steam pressure during
cool nights.

W. H. WILSON

3 & 4 Cells were assembled in different combinations as follows:

1. New Nickel New Iron
2. New Nickel Old Iron
3. Old Nickel New Iron

The factory loading report herewith:

April 30, 1931.
027-3234.

TO: C. E. Hunter,
FROM: C. E. Hunter, Edison Chemical Works Division.
SUB: Nickel Hydro to - Filter Press Process.

Subject: Hydro to J 3421.

Tables loaded on Machine J 153 for 12 1/2 Hrs. Hydro to
worked very good. Did not show signs of sticking
and seemed to load even on all fingers.

amps per tube 206
lb. wt. per dump 3941
Active material per tube 9.777.

Three cells were made up as follows:

1 - 24 Hydro to J 3421 - Plate J 610 Iron Mix special
from Silver 1236.

1 - 24 Hydro to J 3421 - Plate J 610 Iron Mix J 3530

1 - 24 Positive Plates from stock with special Iron
Mix from Silver 1236.

Cells sent to Research for test.

C. E. Hunter. "

On forming test their super hear capacity to date shows:

HRS	Nov 14	Dec 14	Jan 14	Share	Discharge
	Max Iron	610 Iron	Max Iron		
1	196 "H	196.5 "H	200 "H	40 Hrs. @ 15 Amps.	30 Amps.
2	173 "	174.5 "	170 "	16 Hrs. @ 30 Amps. 16 Hrs. @ 15 Amps.	30 Amps.
3	173 "	173.5 "	173.5 "	15 Hrs. @ 30 Amps.	30 Amps.
4	173 "	173 "	170 "	15 Hrs. @ 30 Amps.	30 Amps.

Submitted *Frank Degan*
C. E. Hunter, Plant Superintendent, P. O. Box Co.

C. E. Hunter, Plant Superintendent.
C. E. Hunter

APPROVED for use in Manufacture.

OK go ahead - get comparison
Curves on ~~the~~ A4 with stock Ni
& this new Ni & send me
J. G.

Hunter

I suppose you are
using NiSO_4 from Terry
are you not, want to stop
growing —

Using crystals



OF A

TO: W. A. Altengarten,
FROM: G. F. Hunter, Edison Chemical Works Division,
SUB: General Report for W/E May 21, 1921.

Run on Iron Side for W/E May 21st, 1921.
Made our regular quota 3570 Cells.

Having considerable trouble on Nickel Side with Filter Press Process.

Cannot get electrical capacity on Hydrate like experiments.

Fault seems to be in leaving mass in tank and then making batch on top of it; this makes hydrate white and chalky, instead of green and crystalline as small experiments showed.

As we increased the batch from 6000 to 9000 liters or from 2000 to 3000 lbs. Nickel Hydrate, too much settles out and covers the coils (this tank has no agitator and a flat bottom) and cannot boil down to standard mark. Will go back to 6000 L mark Wednesday, and try and get all material out of tank.

The batches made to date show:

Batch No. 1 - Used to clean filter press lines, etc.,

"	No. 2 - 3rd Run	1186			
	16th "	1255			
	No. 5 - 3rd "	1096	made leaving part in tank		945
	No. 5 - 1st "	759	" " " "		972
	No. 6 - 1st "	824	" " " "		

All tubes made by new man (Patterson) at Research are little lower than regular, so hydrate may be little better than shown, but is not what it ought to be.

Have had to unload 1 car of soda, 1 car of potash, had to haul 60,000 lbs. of iron for generators, and break up 70000 lbs. FeSO₄ crystal to do this. Had to borrow labor from Edison Storage Battery Company for one or two days at a time.

Will be up Wednesday to talk situation over with you and get a few pointers.

May 23/21

G. F. HUNTER,
Plant Superintendent.

Go ahead and raise Coals
Up say 18 inches a feet in a
stirrer Edison

GFR-MG.

To H.A.R. Hunter - Come see me
 From G.S. Hunter. Edison
 Sub: Production report. W. June 25 1921

Res on Ni side for above work
 This is the first complete run made
 with metal pressed made 4000 cells -

OK add the 3 men Edison

The combined stock of Orange and Silver
 Lake is getting pretty low, on both Iron
 and Nickel.

Iron stock as follows

At Orange	9499 lbs	or	13 Huls at 3000 cells per wt.
At Silver Lake	35424 ..	"	3.6 " " " " "
* " " "	8655 ..	"	1.2 " " " " "
			<u>6.1</u> " " " " "

* This item is mostly Hydrogen now being made into metal
 not available for the works.

Nickel stock as follows

At Orange	12039 lbs	or	1.5 Huls at 3000 cells per wt.
At Silver Lake	25252 "	"	3.1 " " " " "
* " " "	15000 ..	"	1.8 " " " " "
			<u>6.4</u> " " " " "

* This item, Nickel in pieces, absolutely necessary that we
 put on 3 men to put it through rest of process so
 we can get electrical test on finished material as shipped
 to Orange
 G.S. Hunter

8-15-71

Hunter Slake

You were to take
the short tube loading
machine down to your
place & load the
tubes. Then send them
up for test to save
delay - Why can't
they be done -
?

August 1921?

To W. O. Edwards
Room 69 Center

Sub. Starting products and Chemical Works.

The stock of Nickel at Chemical works is now down to critical state and it is the writer's opinion that production should be resumed on the Nickel side every week at rate of 10000 lbs per week until small amount of stock is again built up.

Following shows present and future conditions

Orange to use	On hand	Silver Lake Max
	7500 lbs	17627 lbs
	7500	7000
	1500	11000
	7500	11000
	7500	11000
	7500	11000
	7500	11000
	7500	11000
	60000 lbs	Total 57627 lbs

To TCC #2
from G.H.

This shows that at present rate of production there will be no stock available to ship by Sept 1.

At present it takes 3 weeks to complete process ready to ship to Orange.

To precipitate and dry 1 week

" filter and classify 1 "

" make up into 4 get Spuns 1 "

Total 3 weeks.

To start production remaining Nickel electrolyte and Iron every other week would require 11 additional men or total of 33 factory pay rolls when not Iron would be same as at present or 22 men.

OK-102

G.H. Hunter

September 27, 1921.

Mr. Hunter:-

INSPECTOR BURKE REPORTS:

1. At the present time, there is about a ton to a ton and a half of caustic soda refill for E. S. B., stored in one of the buildings of the wks. The Primary Battery Div. is unable to use it because they have no method of grinding small amounts, like in the cans. I believe that Mr. Hunter could use this material in manufacture of nickel hydrate. Of course there is a small amount of lithium contained in this caustic, but if Mr. Hunter would use about 1% of this material, the % lithium would be so small that it would be almost negligible. By using this material it would use up \$100. worth of material, that will slowly deteriorate.

2. In Building #6 there are two steam leaks in the main to the Primary Battery. One leak is a valve stem on the main, and the other steam leak is a flange leak. Recommend that the Power Service be notified of such condition exists.

H. A. Altengarten.

Mr. Edison asked that this be sent to you. An extra copy is enclosed for your reply.

Mag

Art I - We can use in 5% lots on 150 lbs at one time - It requires 2888 lbs NaOH to ppt 1 batch Ni OH - = this would make 2.2% content .2% -
Will use with your OK -

Art II - Will repair Sunday Oct 9 -

OK JAE

B.P. Hunter

October 3, 1921.

Mr. Edison:

Mr. Hunter, Chemical Works, has asked me to write the subjoined
for you:

To please look over papers attached.

Shows capacity of Filter Press Process Hydrate - The loading
with the small opening on the machines, such as Mr. Monahan wants.

That you kindly approve or comment on same.

If you approve, Mr. Monahan will make necessary changes
on the machine.

Change proposed by Monahan
Approved
Oct 3/21
YAE

H. A. ALLEN

Hunter-

This Nickel is for ^{October 11, 1921.}

Mr. Edison:

you to use up Edison

I sent down to Hunter, Chem. Wks., this morning, 2311# assorted nickel, made up as follows:

Nickel Sludge	-----	860#
Nickel Scrap, (Obsolete anodes	}	
Plating Dept. (Worn out anode straps	}-----	401#
(Thin nickel strippings)		
Nickel Scrap from Basement T.A.E. Lab.	-----	1050#
	Total ---	2311#

BE/MEB

B. Kasakova.

To Mr. Edison
 From G. D. Center
 Sub: Nickel metal for dissolving

We have left at Selma Ala

	Ni OK's fines	700 lbs	very sol.
	Reclaim Bk oxide	1400 "	" (except flake)
Don't buy any	Nickel flake	1750 "	very slightly sol
more metal	Scrap anodes	6000 "	med "
than	anode sludge	6000 "	" "
you actually need		<u>36100</u>	

To take up
 what you
 can't get
 up from
 scrap -

by treating the flake scrap anodes a anode sludge daily, and cannot dissolve enough per day to carry on production as it will not dissolve rapidly enough.

We have now run 7 1/2 months on scrap only and as it works down leaving only the most profitable of metal at end.

We had on hand and received 294000 lbs of scrap material to date

We have made 200 000 lbs new Ni OK's

The nickel flake has always been a different problem as to dissolving and cannot be relied on to furnish any large amt of Ni SO₄ per day, but will wear out in time.

At present time we are using 8400 lbs of Ni as metal per week or 4700 cells

We are building up small stock in advance for the time when we move our Ni OK's apparatus from No 5 Bldg to No 111 Bldg - and the production can be carried on for a week or so.

Therefore we request that you at the following rate of new metal per week as follows

TOTAL # 2

All fresh acid to pass over scrap metal first, then to neutralize by passing scrap Blk Oxide from T. A. Nelson (Electro plant) when available and last new metal

This process make following consumption of metal per week -

Scrap (anode)	2500 lbs
" (Bl oxide)	2000 "
New metal	4000 "
Total	8500 "

We have on hand at present 20000 of reduced ni metal

Attached list shows amount and brand of scrap received.

C. F. Hunter

Nov. 23. 21.

November 1921?

To Thos W. Edison.
From C. P. Hunter.
Re - Increased production.

The Storage Battery Co have increased their production 100 cells per day or 550 cells per week. We find it necessary to increase same on metal side at present rate from 4080 to 4760.

We are at present using on Nickel side 15 men. We can by putting on 1 man turn out 4760 cells and save \$3.50 as follows

(1)	By using 15 men 6 days	Payroll	368.24
(2)	" " 16 " 5 "	" "	334.68
		Saving	\$33.56

Would increase our production	600 cells
Would save	\$33.56

This would increase factory payroll to 35 men as follows

Iron side	17 men
Nickel "	16 "
Watchman	1 man
Machinist	1 "

These 35 men would only work when Iron & Nickel side both produced same week following shows men on factory payroll and those that actually worked during last 6 weeks.

Date	on Payroll	worked.
Oct 1	29	22
8	29	28
15	29	24
22	29	24
29	28	24
Nov 5	28	23
12	34	33

CHP

C. P. Hunter.

To T. Edison
From C. V. Custer
Sub. Non-pc Chemical Works

Ran 5 days on new method of iron reduction
made 57 - 200 lb pots using 4 furnaces
(cut the oil consumption from (Ces style)
33 gal per 100 lb pot to 44 gal per 200 lb pot.
This saved \$100.32 on oil alone for 5 days -
The reduced iron is a little hard and
brittle, but we can overcome this.

Have not made much progress on mud
recovery, have discovered a large supply of good
sharp sand within 20 feet of the door of 112 Bldg.
(7th St & 5th Bldg) want to talk this over with you.

We have tried out eliminating the
step of drying the percolates by heat, instead of
drying the hydrate we place it directly in
the classifier and then dry and screen, about
10% fail to pass screens. This we crush.

We have submitted a sample of dried salts
to the Dorr Co to see if they could not wash out
the Na₂SO₄ etc by other 3 deck classifying method
they have got excellent results so far. If this is
practical we can place our salt, as coming from the
drier direct to this apparatus, wash the material
and feed it direct to our present classifier. This
would only be one handling and continuous -

At 1000 cells we could eliminate about 4 men.

Dec 12/1921 There are two urgent repairs needed at
Edison Lab.

OK go
ahead
7/12/21

(1) To put new muffles in one of our roasting
benches.

(2) To make new covers for our metal dishes
with your oil covered like to get estimates
also our Bldg No. 6. old power house is in very bad
condition do you want estimate on repairing same?

C. V. Custer

To T A Edison
From C J Wente
Sub: Increased production.

Orange has increased their production
another 100 cells, or 800 cells per day.

Would like you to be following
1 man for Ni Side would make 19mins -
1 " " Fe " " " " "
1 " " Mineral Solon 1 "
1 " " Med recovery Ni 1 " 44

33

That this increase would make 1100
cells per day on Ni side, and
900 cells per day on Iron side -
Until we get kinks ironed out,
then with same men we could
produce 6000 cells in 5 days.

OK JAW

C J Wente

Dec 13/21

C19217

Mr. T. Clodion

As per return of the following
 lots with the found amount

Month	Production	Cost of Special	Cost of Special	Cost of Special
Jan	5006	.285	5006	Special
Feb	5166	.575	4000	Found
Mar	10532	.575	3557	Found

This figures show up
 very good

C. J. Clodion

To: T. Edison.

Jan 4/22

From C. P. Hunter

Subj. Cost of NiO₂ using scrap Hydrate without cost

Submit following figures on above

Cost of NiO₂
using Ni Metal

.26
.04293
.04216
.20873
<hr/>
.55382

Cost of NiO₂
using scrap Hydrate

Ni	.000
O ₂ Vets. <i>what is this</i>	.04293
Labor	.04216
Expenses	.20873
<i>What expenses</i>	<hr/>
	.29382
Spring pull	.26000
	<hr/>
	.55382

Therefore if we received nickel gratis would save sum of \$260⁰⁰ per 1000 lbs manufactured

C. P. Hunter
Hunter. Give details
of Cost all items!
Edison

[ATTACHMENT/ENCLOSURE]

↓
Hunter Can you give labor 40000000
Cost per 1000 lbs Ni(OH)₂ ready
to be sent to Orange - excluding
the cost of Metallic Nickel.

What I want to get at is
what is Cost if you buy
Metallic Nickel -

4 How much will it
Cost if I furnish
the Nickel in the form
of old Ni(OH)₂ from
returned Cells
Charging you nothing
for it + Σ

JAN. 7, 1922.

TO. T. A. EDISON.
 FROM. C. F. HUNTER.
 SUB-COMPARISON OF NICKEL HYDROXY OXIDE
 USING NICKEL METAL AND USING SCRAP NICKEL WITHOUT COST.

	COST PER LB.	COST PER LB.
NICKEL METAL.	.26000	.00000
VITRIOL	.01765	.01765
CAUSTIC SODA.	.02833	.02833
	<u>.30293</u>	<u>.06293</u>
LABOR.	.4216	.04216
EXPENSES.		
DEPRECIATION.	.05606	.03606
INSURANCE.	.00913	.00913
TAXES.	.00681	.00681
STEAM.	.07702	.07702
CURRENT.	.02175	.02175
MAINTENANCE.	.01416	.01416
FOREMAN.	.00629	.00629
LABORATORY.	.00167	.00167
WATCHMAN.	.00416	.00416
REMOVAL FOR IMPROVEMENT	.00553	.00553
HANDLING AND SHIPPING.	.00122	.00122
FES. FOR INV. ADJUSTMENT.	.00572	.00572
MISCELLANEOUS.	.01908	.01908
	<u>.20873</u>	<u>.20873</u>
TOTAL COST BUYING NICKEL.	.55382	.29382
		.26000
		SAVING PER LB.

IF WE RECEIVED NICKEL GRATIS WOULD SAVE SUM OF 260.00 PER 1000 LBS.
 COSTS BASED ON MONTHS OF OCT. AND NOV.

C. F. HUNTER.

C f h

EDISON'S HAND.

Jan. 30, 22

To - T. A. Edison
From - C. V. Hunter
Sub. - General

Submit following record of first 5
batches Iron mix made with new method

Run	Batch no.				
8th	<u>5292</u>	<u>5293</u>	<u>5294</u>	<u>5295</u>	<u>5296</u>
	1625 MWh	1800 MWh	1695 MWh	1745 MWh	1690 MWh

Will run to 16 runs or two cycles -

The iron builds up the more it is run -

Having some trouble getting it uniform
and ending between 1700 MWh and 1800 MWh on
8th run -

The iron loads very freely in pockets -

Running 2 pots per furnace per day -

until we are sure of it.

We are working mud from dumps

Find it costly to dry - made several

test in laboratory and find that
mixing with sand (coarse) alone and
then percolating works OK -

would you approve cutting out drying
if we can make it work OK -

OK - but don't you get somewhat from in solution

TAB no 2.

Started up new nickel plant
today - all moved to No 111 Bldg -

Loading weights on nickel went up
toward end of production in old building
Will watch this closely as we start to
dig in present location.

C. F. Hunter

CPH

2190

MEMORANDUM NO.

DATE February 22, 1922

FUNCTION

To:— Mr. F. D. Fagan
From:— Mr. C. F. Hunter
SUBJECT— Repairs at Chemical Works

To bring to your attention the conditions existing at the Chemical Works Division. I am submitting the following list of repairs that should be attended to. These repairs are necessary, as in most cases where we have two production units, one is now running, the other standing idle waiting for repairs; if our present apparatus should fail us it would seriously cripple our production.

<u>IRON SIDE.</u>	
Dust Chamber for Sulphate Drier	Carpenters are now working on this. <i>ok Melson</i>
Roasting Furnaces	To repair one (1) furnace. <i>ok Melson</i>
Roasting Furnaces	Should order one (1) setting for another furnace. 200.00 <i>ok</i>
Roasting Furnaces	To rebuild chimney on furnace. 1300.00 <i>X</i>
Red Iron Driers	To repair same. <i>ok Melson</i> 50.00 <i>X</i>
Red Iron Driers	To install new dust collector. 275.00 <i>ok</i>
Reduction Furnaces	To purchase sixteen (16) new ralls. 150.00 <i>ok</i>
Reduction Furnaces	To purchase ten (10) new pot covers. 240.00 <i>X</i>
Reduction Furnaces	
Reduction Furnaces	480.00 <i>ok</i>
<u>NICKEL SIDE.</u>	
Nickel Dissolver	To repair cover. <i>Melton</i> 215.00 <i>ok</i>
Nickel Sulphate Line	To install new lead line. 150.00 <i>ok</i>
Nickel Precipitating	To lag boiling tank. 350.00 <i>ok</i>
Proctor Drier	To put in good condition. 200.00 <i>X</i>

Steam Lines
Roofs & Gutters

Buildings

GENERAL.

To cover 5" and 4" line in #11 Bldg.
Gutters are in bad condition, should have outside contractor come and make estimate for repairing same. *ok*
Buildings are badly in need of paint, in some cases paint was taken off and labor stopped. Buildings have been exposed to weather for one and one half years (1 1/2). *Sherman*

The purpose of this letter is to enlighten the writer whether it is necessary to get further authority or special appropriations for this maintenance work. We would not start all repairs at same time, but would extend them over a period of several months.

C. F. Hunter.
Plant Superintendent.

CPH:HS

COPIES TO—

ok as marked ok
by me - X can be postponed
Thos Addison

Melton ok to that extent. Fagan ok

September 7th, 1922.

FROM: H. C. Egerton
TO : Mr. Thomas A. Edison
SUBJECT: Use of Re-Claimed Iron.

A short time ago Mr. Pagan in company with Messrs. Mitchell, Hunter and myself took up with you the question of using re-claimed iron and high manganese iron in making up the iron mixes. At this time you said that none of the old or re-claimed iron should be used.

Since then we have conducted extensive tests to determine the effect of re-claimed iron and find that the electrical capacity is, if anything, slightly increased and it is possible by using some of this iron to adjust the loading weights more easily and more accurately.

We should, accordingly, like your approval to use as high as 15 per cent as covered by the following specification.

"For the purpose of making Iron Mixes which will give more uniform loading weights and a better feeding, it will be permissible to use at option as high as 15 per cent "Re-claimed Iron", provided, the resultant mix gives in the five gram pocket on the eighth run an electrical capacity of 1700 N.A.H.

"Until conditions are stable Iron may be used as "Outside of Limits", which gives 1650 N.A.H. or better.

"Re-Claim Iron is iron taken from old cells, treated with sulphuric acid and which after treatment meets the chemical requirements for new iron."

This will give Silver Lake a much greater latitude in obtaining the proper loading characteristics and electrical capacity by mixing, as you suggested some time ago when you explained to me your method of handling wood flour.

H. C. Egerton.

OKW

To T A Edison
From C F Hunter

Feb 1/23

Sub. Hoods on tanks

Hunter

In our Nickel Sulphate Dept where
the SO₂ is purified there are three
tanks where we boil the Ni SO₄
+ Na O Cl. solution.

These tanks allow steam containing
some chlorine to permeate all parts
of the building, eating up iron
parts and electrical work.

So if ok to eliminate this nuisance
by installing 3 wooden hoods at
a total cost of \$200⁰⁰?

C. F. Hunter

OK JAE

To T A Edison
From C P Hunter

①
June 18/20

Obj. Suggest improvement to shorten process, and reduce
costs at chemical works.

Following is a list of suggested changes
in apparatus and methods where by we
could further reduce the cost of Phos-
phoric Anhydride. After you read on the card
about your comments.

C P Hunter

↙
Hunter - Now go ahead & get up a
list of Savings that can be
made in Plant

Also any other Savings which we
can get our investment back
in 12 to 18 months

Edison

Manufacture of Nickel Hydroxide

Nickel Dissolving

Present Method

The present dissolvers are of the dormant type. We place 15000 lbs of nickel metal in one dissolver, and allow 25% acid to percolate through metal. Thousands of white large percent of soluble nickel is present, but about 50% of metal is slow dissolving, and it is necessary to keep 3 generators of service to make 20000 lbs per day, also it takes 30000 to 40000 lbs of metal in process at all times.

Proposed method

Suggested that we adopt a deep tank with motor metal agitator and automatic nickel metal feed so that we can control rate of Hydrogen sulphide.

This tank would handle 60000 lbs of metal for 24 hrs or enough for 3000 cells per day.

This method dissolves metal so that 1% nickel residue is left. It is used by the International Ni Co and by a company in Cleveland, who manufacture Ni SO₄ salts for the market.

With this method we would never have more than 3000 lbs of Ni metal in process where at present 1% vary anywhere from 30000 to 40000 lbs -

Merck purification

Present Method

We use NaOCl plus a small amount of Na_2CO_3 to oxidize and precipitate the iron contents of a batch of H_2SO_4 solution. This method always brings down some H_2CO_3 so that we have to rework the merck. We also have a two tank unit for making H_2SO_4 which takes considerable maintenance due to Cl fumes.

Proposed Method

Suggested that we try oxidizing with chlorine gas in a slightly alkali solution and make neutral with Na_2CO_3 and precipitate Fe in this manner. Cl gas is bought in steel cylinders and moved to away with H_2SO_4 apparatus.

If we cannot work successfully with Cl gas first, I would suggest that we save some soda from precipitation zone, and then use same, making our own H_2SO_4 .

If you decide to make changes in method of dissolving and purifying we could install new apparatus and more oil that we require to our 111 Bldg, thereby putting all merck operation under one roof.

Nickel Precipitation

Present Method

At present we make a batch equal to 4000 lbs. or 1370 cells.

Proposed Method

We could with our present layout increase the batch to 4735 or 1769 cells.

Have tried out this method on three batches but want to try it once more before getting year OK to make change permanent.

When the present tank wears out should install one large enough to make 6000 lbs or 2000 cells per batch, also take up matter of installing some type of pump, emptying filter press.

Reclamation of Salls

Present Method

We place salls in copper line from tank (we use 6 per 2000 cells) tank line at present in need of repair.

When tanks are full of salls we wash free from Na₂SO₄ and NaOH, taking same, and drying before crushing and classifying same before rearing, and drying for Crude.

Proposed Method

Should suggest we purchase and install a 4 deck Deere classifier at once, and build to it so that we wash salls ground, classify, and dry in one operation.

Summary of cost to install and ⁽³⁾
 Savings per year if purchases mentioned
 changes are made

Item	Cost	Labor	Savings
To purchase and install Ruckel pump hole tank and more necessary appurtenances	\$ 3 500 <u>3 500</u>	Labor Paint Steam	5 000 3 000 1 000 <u>9 000</u>
To use oblonger spindles on No. 50's	\$ 400	Labor Spare Material	\$ 1 000 300 300 <u>1 600</u>
Increase size of No. 0K ₂ Patches	none <u>000</u>	Labor	2 000 <u>2 000</u>
To purchase and install 1. Dorr classifier Mill for crushing Ingravel Drum	\$ 3 500 5 000 300 2 000 <u>10 800</u>	Labor Spare Material Steel press	6 000 5 000 1 000 2 000 <u>17 000</u>
Total expenditure			
	\$ 14 700		
Total saving			\$ 27 600
Net saving			\$ 12 900
			<i>W. Hunter</i>

Hunter -

Orders for storage
batteries are falling off

There is no doubt but
all our troubles are due
to high prices of our Cells

We must go deeper into the
subject of reducing costs
of our Nickel & Iron

Please make up a
list of what we have
agreed on & which is

(2)

being installed or
aunched, and then
report what other
things we can put in
to Reduce the
pay roll -

I want to knock off
45 to 45 cents off
N & Fe per A4 cell

Interviewed
Oct 30/23
Submitted write up
in progress

Edwin

Hunter

Have you any Iron
or Hydrogen - The
Hydrogen being created
off in Nitrogen so
it is not pyrophoric

We made some
ones - if you have
now could you
make some
say 4 or 5 lbs -

Edson

[ATTACHMENT/ENCLOSURE]

Dec 31/23.

To T. M. Edison
From C. F. Hunter
Sub. Iron by Hydrogen - Hydrogen replaced with nitrogen.

Your note on above received today
We have no I by H - H replaced by Nitrogen
on hand.

Will proceed to make same at once

We have on hand 100 pounds of I by H
and the hydrogen displaced by
admitting air very slowly, about
6 bubbles of air per minute. This
is the method we made all our I by H
for the pharmaceutical trade and got
a very high grade iron.

C. F. Hunter.

Want the same method used
as now used but when ready
to cooled, ~~then~~ cut off
cooling hydrogen + substitute
nitrogen - Don't self heat

Jan 18/14

Mr. M. Edison -

Have left with Mr Payne
 $\frac{1}{2}$ Drum by Hydrogen reduced
at 1100° Hydrogen
replaced by Nitrogen.

Have tried out oxidizing
our NiSO_4 solution
with NaOCl_2 find it
works ok - will not be
necessary to be worried.
Report on this later

What is being done to
supply the chemical works
with a supply of about
3000 lbs reclassified iron
per week

We could use this
to great advantage
at this time. Sales
15¢ a pound on
iron mix.

We have on hand at
the Chemical Works.
50 - cars that hold
28 pans of material
for drying these are
now obsolete as present
cars hold 40 pans.
We have been offered
\$100.00 for the lot. Shall
we sell some or send
them to Sabage for
storage
C. F. Hunter

1
Hunter

The Nickel from the hydroxide is too dense

The Nickel from ignited NiSO_4 is very fine and falls to pieces when you want it like medicinal iron by $\text{H} + \text{CO}_2$. This

can be screened in 8 sizes & every little finds

Can you mix some Ni ignited from sulphate

11 14

2 11 12

with about 5 or 10% of precipitated hydroxide + dry. Then reduce in $\text{H} + \text{CO}_2$. The hydroxide will probably stick it together enough so I can size it & so in time be as porous as the iron granules

Try some experiments varying the amount of hydroxide of air as soon as you can

Some of the big pieces from ignited sulphate screen down & it worked fine. Perhaps the

3. lb of
oxide could be prepared
damp by hydromic
some what then dried,
& screened ~~so~~ then reduced
by H₂ & Co₂

Send me up a few ⁵⁰⁰
grammes of the ^{Co₂}
liquid oxide of ^{and reduced}
from H₂SO₄ ^{of the}

Σ

[ATTACHMENT/ENCLOSURE]

I have about finished
Machine for removing
nickel from tubes)
+ will soon be
ready to take
up regeneration of
old cells + give
you nickel I know
about all pans
+ cans just up
2

Bunker - Time Costs Machinery -
Where is the saving, that is what
May 22, 1934.

Mr. Edison - you should show - Edison

CHEMICAL WORKS

In reference to a recent report of mine on the use of a Dorr Classifier in the manufacture of Nickel Hydrate at the Chemical Works, I wish to state that I have secured additional data which I think will be of interest to you.

My previous report, outlined the present process for the manufacture of Nickel Hydrate; the work expected to be performed by the Dorr Classifier; the reasons why the Dorr Classifier failed to function as expected; offered suggestions for additional apparatus to the present installation to make it function properly and make it a paying proposition.

The part of the method that we are interested in at the present time is that part from where the "Salts" come from the Proctor Drier on thru the so-called process of "Classification."

(1) Washing the "salts" free from sodium hydrate and sodium sulphate, by percolating these "salts" in water for a period of approximately 72 hours.

(2) Placed in drier for a period of approximately - 36 hours.

(3) Crushed and screened, after which the fines are removed by a small "Dorr Classifier" (similar to the new installation).

The above operation consumes about 8 hours.

(4) Material is re-dried for period of approximately 24 hours.

(5) Mixed and shipped.

Under our present method of operating, the time consumed in the process of "Classification" of Nickel Hydrate is as follows:-

1 - Percolating	- 72 hours
2 - Drying	- 36 "
3 - Crushing and Screening and Classifying	- 8 "
4 - Re-drying	- 24 "
	<u>140</u> " = TOTAL.

In order to wash sodium hydrate and sodium sulphate free from the Nickel Hydrate and get it into a workable state, the present process requires a double drying of approximately 60 hours and the total working period of 140 hours.

As near as I have been able to ascertain, the present process has been in existence for the last ten years. The only change made in recent years was the installation of a small Dorr Classifier to remove the "Nickel fines." Other than that, the process has remained the same.

The Dorr Classifier as installed at present, I realize has nothing to recommend itself, yet by making additional installation it is possible to not only retrieve the money already expended but to further reduce the cost of nickel hydrate classifying and to cut the time required by the present process.

The Classifier equipped with a "Leaching Barrel", Screen and Hardin Mill, with a conveyor, is expected. 1st - to wash the nickel hydrate free from NaOH and Na_2SO_4 ; 2nd - Remove the nickel hydrate fines; 3rd - Screen 40% of material free from bulk of the batch; 4th - Re-grind coarse material and return it to the system.

It is expected that it will require 8 hours to make a run of a single batch of 4000 lbs.

The only added operations necessary will be the final drying and mixing of the hydrate.

Provided the Classifier works as outlined, the following saving will be made:

- 1st - Saving of 108 hours in length of time of the process of Classification.
- 2nd - Eliminate a single drying period of 36 hours.
- 3rd - Combine the operations of percolating, crushing, screening and classifying.
- 4th - Reduction in the amount of labor necessary to carry on the process.

If it is possible to equip this classifier to obtain the above results for an approximate sum of \$2000, it certainly appears to be an attractive business proposition.

Comparing the present method of manufacture with the proposed use of classifier, we have:

<u>Present Method</u>	<u>Use of Classifier</u>
1 - Percolate 72 hours in hot H_2O	Dissolve by mechanical means
2 - Crush, dry and screen	Crush and screen - wet.
3 - Remove nickel hydrate fines wet, by classifier	Remove nickel hydrate fines wet, by classifier.

(1) The washing out of the NaOH and the Na_2SO_4 , differs in that the present method is done by percolating while proposed method is done by mechanical stirring of mass with a fresh supply of water.

(2) The second differs in that by the present method the material is crushed and screened dry, while in the proposed method, it will be crushed and screened wet.

(3) The removal of the nickel fines will be done exactly in the proposed method, as is done in the present one.

Analysis of the present method shows that too much time is required to complete the classification of the nickel hydrate.

The proposed changes in the present installation of the Dorr Classifier seems to offer a quick and easy change from our present method of manufacture, to a more compact and shorter process.

This process must be considered for any new development where Nickel Hydrate is to be used in storage batteries because the classification is the "neck of the bottle" in the production rate of this material.

Joseph P. Burke.

Mr. Edison:-

May 24, 1924.

Hunter
Do you think this ok
do you believe you
can make it work
CHEMICAL WORKS

Analysis of the possible amount of saving that can be made by the new installation of the Dorr Classifier, shows that it will pay for itself in approximately six months time. *Edison*

The following table is a comparison of labor required for different productions, by the present method and the proposed:

<u>Present Method</u>	1250	1500	1750	<u>Proposed</u>		
				1250	1500	1750
Percolate and lead drier	1	1	3	Eliminate		
Pre-screen and crush	1	1	1	Eliminate		
Dorr Washer	1	1	2	1	1	2
Final Screen	1	1	1	1	1	1
	4	4	7	2	2	3

Present method requires four men, for 1250 and 1500 cells per day and seven operators for 1750 cells per day.

If this same production is maintained, two operators can do the work under the proposed system and three operators for 1750 cells per day.

In other words, there is a saving of 50% of labor required under present production, which will increase almost in the same proportion with production. Under present production schedule two operators will be eliminated. At the rate of \$4.50 per day, two operators eliminated amounts to

$$\$4.50 \times 2 = \$9.00 \text{ per day on labor}$$

Savings on Heat

One drying operation of 36 hours duration will be eliminated. The amount of money saved in this operation must be estimated, which I have done in the following manner:

1st - Estimate that it requires 4 lbs. of steam to evaporate moisture from 1 lb. of nickel hydrate and there are approximately 4000 lbs. of material to a batch.

$$\begin{aligned} 4000 \text{ lbs. of Hydrate} \times 4 \text{ lbs. of steam} &= 16,000 \text{ lbs.} \\ \text{required at } 76\% \text{ per } 1000 \text{ lbs. of steam.} & \\ 16 \times .76 &= \$12.16 \text{ for Heat saved.} \end{aligned}$$

Money Saved on Material in Process

Estimated that it will take 30,000 lbs. of Hydrate out of process and this material is valued at 40¢ per lb., or a total value of

$$\begin{aligned} 30,000 \times .40 &= \$12,000 \\ 12,000 \text{ at } 6\% &= \$ 720 \text{ per year interest.} \end{aligned}$$

There are 300 working days per year.

$720 \div 300 = \$2.60$ per day saved on interest.

Savings Made By Reduction in the Re-working
of Nickel Hydrate Fines.

By present process, approximately 10% of the batch is nickel hydrate fines.

By the new process, it has been found that about 6% of the batch is fines.

Therefore, the amount of fines made is 4% less than by present process.

4% of 4000 lbs. = 160 lbs. of fines do not have to be re-worked.

At this point in the process, nickel hydrate is worth 27¢ per lb. and nickel value is 15¢.

27¢ - 15¢ = 12¢, represents labor and material value per lb. of Nickel Hydrate

160 lbs. x .12 = \$19.20 saving by reducing production of Nickel Hydrate Fines.

Tabulating these savings, we have the following savings per day:

Labor	-	\$ 9.00
Heat	-	12.16
Interest	-	2.60
Nickel Fines	-	<u>19.20</u>
		\$42.96 Total Savings per day.

Estimating that this apparatus has cost the Company so far \$5900 and it may cost \$2000 for additional apparatus and experiments, there would be a total of \$8900 invested.

\$8900 total cost \div \$42.96 savings per day = 207 days required to pay for itself.

$207 \div 30 = 6 \frac{3}{4}$ months

Providing the above apparatus with additional installations does the work expected of it, this will indeed be a fine proposition.

J.P.B.
Joseph V. Burke

To, T. A. Edison
From, C. F. Hunter

7 VOTES
176015500

May 27
24

Sub. Burkes memo on Dorr classifier.

In reference to your comment on attached memo. We are certainly of the opinion that we can make the Dorr classifier work. At present as machine stands it washes out all but 4 of 1% Na₂SO₄ and allowable amount to pass is .15% of 1% so we have to remove an additional .25% of 1% and we will try to make Na₂SO₄ nil.

With your permission and without spending any more money at present for new apparatus, but possibly material that we have on hand at the chemical works we would like to go ahead on this job and get it over.

C. F. Hunter

Hunter All right
go ahead
T. A. Edison

To - T. A. Edison.
From - C. F. Hunter.
Sub. - Low Classifier

We have concluded all tests
on washing the salts from
the dried filter using the Low
Classifier

Attached sheets are tests made
in connection with same.

Would like your approval on
same so that we may incorporate
it in our production process
at Silver Lake

It is our intention to work from
this point on so that the grinding,
screening, and final drying
will become one unit thereby
further reducing costs

C. F. Hunter

Dec 6/24

[ATTACHMENT/ENCLOSURE]

November 26, 1924.

To: C.F.Hunter.
 From: H.C.Leonard.
 Subject: Ni(OH)₂ Leached in Dorr Classifier -- Electrical Capacity.

A fifty pound sample of finished Ni(OH)₂ #24-240-241 was sent to Remitchell, E.S.B.Co., for the purpose of making tests on hydrate leached in Dorr Classifier.

The tests were to be made as follows:

- (1) Three short tubes to 16th run.
- (2) Ten long tubes to 16th run.

To be run in same circuit with "Standard" Ni(OH)₂ #875, for comparison.

- (3) Three A 4 Cells to be made from Dorr Classifier material and given ten runs with a like number of A 4 Cells from regular production, for comparison.

Tube Wt.	(1) Short tube test.		(2) Long tube test.	
	#24-240-241 Average.	#875 Average.	#24-240-241 Average.	#875 Average.
	7.770 Grams.	7.810 Grams.	10.252 Grams.	10.439 Grams.
1st Run	830.0 M.A.H.	928.5 M.A.H.	1109.6 "	1210.0 M.A.H.
2nd "	1088.5 "	1075.0 "	1558.9 "	1437.7 "
3rd "	1145.0 "	1083.5 "	1687.6 "	1480.2 "
4th "	" " " " "	" " " " "	1724.3 "	1475.0 "
5th "	" " " " "	" " " " "	1732.5 "	1841.7 "
6th "	" " " " "	" " " " "	1751.9 "	1854.3 "
7th "	" " " " "	" " " " "	1729.6 "	1830.7 "
8th "	" " " " "	" " " " "	1725.4 "	1640.3 "
9th "	" " " " "	" " " " "	1725.7 "	1606.7 "
10th "	" " " " "	" " " " "	1742.9 "	1659.3 "
11th "	" " " " "	" " " " "	1741.4 "	1662.7 "
12th "	" " " " "	" " " " "	1752.1 "	1741.3 "
13th "	" " " " "	" " " " "	1815.3 "	1755.7 "
14th "	**1183.5 M.A.H.	**1190.0 M.A.H.	1797.2 "	1741.3 "
15th "	1210.0 "	1203.0 "	1810.9 "	1751.3 "
16th "	1220.0 "	1220.0 "	1820.2 "	1764.0 "
Restored 16th	1255.0 "			

** Current off for unknown length of time on 14th run of short tubes.

A 4 CELLS --- (3)
 From Dorr Classifier Hydrate.

Run	Hrs.	Rate.	Discharge Rate	M-15179.		M-15180.		M-15181.	
				A.H.	Volts.	A.H.	Volts.	A.H.	Volts.
1st	45	15	30						
2nd	10/14	30/15	30						
3rd	"	"	30						
4th	15	30	30	182.5	1.02	182.5	1.02	182.5	1.00
5th	15	30	30	172.5	1.02	182.5	1.07	172.5	1.02
6th	7	30	30	160.0	1.00	160.0	1.00	160.0	1.02
7th	7	30	30	160.0	1.02	160.0	1.02	160.0	1.02
8th	7	30	30	162.5	1.02	162.5	1.03	162.5	1.03
9th	7	30	30	155.0	1.03	155.0	1.03	155.0	1.02
10th	7	30	30	160.0	1.01	160.0	1.01	160.0	1.00

The first three runs have no readings as cells were on regular formation with 180 other cells.

(CONTINUED)

[ATTACHMENT/ENCLOSURE]

11/25/24.

(P-#2)

To: C.F.H.
 From: H.C.L.
 Subject: Ni(OH)₂ Leached in Dorr Classifier -- Electrical Capacity, continued.
 A 4 Cells.

Run	Charge.		Discharge. Rate	From regular production.		M-16360.		M-16467.	
	Hrs.	Rate		Final		Final		Final	
				A.H.	Volts.	A.H.	Volts.	A.H.	Volts.
1st	48	15	30	The first three runs have no readings as cells were on regular formation with 150 other cells.					
2nd	10/14	30/15	30						
3rd	"	"	30						
4th	15	30	30	182.5	1.02	182.5	1.02	182.5	1.02
5th	15	30	30	172.5	1.07	172.5	1.08	172.5	1.09
6th	7	30	30	160.0	.98	160.0	.97	160.0	1.00
7th	7	30	30	160.0	1.00	160.0	1.00	160.0	.99
8th	7	30	30	162.5	1.01	162.5	1.01	162.5	1.01
9th	7	30	30	155.0	1.01	155.0	1.01	155.0	1.01
10th	7	30	30	160.0	.99	160.0	.97	160.0	.98

It will be noted that the three cells made from Dorr Classifier material gave a higher voltage to the same capacity than the three regular cells.

In addition to the above mentioned tests on hydrate from the Dorr Classifier, twenty-nine batches were treated satisfactorily in the Dorr machine and gave the following short tube results:

Average short tube weight	7.580 Grams.
Average 16th run	1237.9 M.A.H.
Average factored 16th run	1263.3 M.A.H.

The foregoing information is for the purpose of obtaining the necessary approval for the elimination of present percolation method and the adoption of the Dorr Classifier as a part of our standard process.

OK - you can use
 Classifier
 Thos Edison
 Dec 6th 1924
 H.C.L. *[Signature]*

Jan 30/25

To T. Edison
From C. J. Hunter

Re: Charge in process - Being continuous
key-takings for including Jacob's flat

We have completed the experimental
work on the piece of apparatus
and with your approval would
like to make this change in
our present work process.

The 5 gram iron unit permits all passing
the resistance without test, all iron
numbers above 1750 that is 1 volt.

As this apparatus is adopted at
well, in our decision the space occupied
by the iron operations compared to the
space occupied previous to 1921. So that
in the future when a new building will
be in business the iron would be contained
in one half the space previously occupied.

The subject of plants you will understand
details on the suggested changes.

C. J. Hunter

McElleson OK'd

and retained the original copy -

Jan 30/25

[ATTACHMENT/ENCLOSURE]

To: - G. P. Hunter, Mgr.
Subject: - Continuous Crystallizer
Date: - Jan. 29th, 1925.

Experiments conducted on the 10 foot section of Swenson Walker Continuous Crystallizer for the past several months have proven by their results that it would be to our advantage, in materially reducing the cost of manufacturing iron sulphate crystals, to discontinue the present method of crystallizing in tanks and install complete equipment for crystallizing continuously.

In running our experiments we have been at a disadvantage in so far as continuous crystallizing is concerned because of the fact that a 10 foot section, being so small, necessitated its being used as a batch crystallizer rather than continuously, but the results obtained coupled with the assurance of the Swenson Evaporator Co., who base their statements on other installations, were such as to justify us in believing that there will be no material difference in the results when equipment is used for continuous crystallizing.

The crystals produced are a fine sugar crystal of a fairly uniform size which will be an advantage over the present varied assortment ranging from fine crystals to those two inches in diameter, the only disadvantage being the difficulty in feeding them to the sulphate drier, which will be overcome by the installation of larger conveyors and knockers on the rotaries.

An advantage which would alone justify the installation is the shorter time of the material in process, our experiments indicating that it will require six hours in process by the continuous method while it now takes from 36 to 48 hours, depending on the atmospheric temperature, a reduction of 30 to 62 hours.

In our plans we have made provisions for the future installation of a Swenson Evaporator to replace the present costly concentrating tank when it is no longer serviceable, and this equipment with the continuous crystallizer will release 6600 sq. ft. of floor space required by the present method.

The saving in steam is based on the fact that we have a yield of crystals from the first solution by the continuous method of 72% compared to a yield of 58% by the present tank method.

Attached are data sheets showing cost of installation savings and electrical tests which will justify the installation.

B. P. Morris

[ATTACHMENT/ENCLOSURE]

To:- Mr. G.F. Hunter.
 From:- A. H. Patterson.
 Subject:- A-4 Cells with Iron Mix #5760
 Date:- Jan. 29th., 1925.

Iron Mix #5760 made from crystals in a continuous crystallizer was loaded into "A" type pockets and assembled into A-4 cells.

The cell numbers were: 20125 M, 20126 M, 20127 M.

Three regular cells assembled from regular production iron were run as comparison with these cells. These were: 20113 M, 20063 M, 19762 M.

The loading qualities of Iron Mix #5760 are as follows:

Max. No. of dumps	21
Min. No. of dumps	15
Ave. No. of dumps	18
Ave. wgt. per pocket	8.39 gms.

Feeding - Slow

The six cells were run at the beginning of a regular circuit of 155 A-4 Cells. Therefore all cells go exactly same treatment.

The capacities shown were: Run 1, 2, 3, 4 formation runs.

Special Cells			Regular Cells		
Run #4 15 Hr. charge.					
	A. H.	Volts		A. H.	Volts
20127 M	180	.98	20113 M	180	.98
20126 M	180	1.00	20063 M	180	.96
20125 M	180	.99	19762 M	180	.92
		.99			.953

Note voltage in favor of special cells.

Run #5 15 hr. charge.

20127 M	172.5	1.05	20113 M	172.5	1.04
20126 M	172.5	1.07	20063 M	172.5	1.03
20125 M	172.5	1.05	19762 M	172.5	1.04
		1.057			1.037

End voltage not carried to 1.0 volt because remainder of circuit going out fast. Note voltage still in favor of special cells.

Run #6 7 hr. charge.

20127 M	150	1.03	20113 M	150	1.02
20126 M	150	.96	20063 M	150	.98
20125 M	150	1.00	19762 M	150	1.00
		x			1.00

This run was unsatisfactory.

[ATTACHMENT/ENCLOSURE]

Special Cells			Regular Cells		
Run #7	A. H.	Volts	A. H.	Volts	
20127 M	157.5	1.00	20113 M	157.5	.98
20126 M	157.5	1.02	20063 M	157.5	.96
20125 M	157.5	<u>1.02</u>	19762 M	157.5	<u>.98</u>
		1.013			.97

This capacity is right. Note voltage in favor of special cells

After the 7th run the whole circuit was discharged completely so that all but these 6 cells could be sent to stock. The result will mean that the next run will show low capacity.

7 Hour charge.

Run #8	A. H.	Volts	A. H.	Volts	
20127 M	150	1.00	20113 M	150	1.01
20126 M	150	1.01	20063 M	150	.97
20125 M	150	<u>.97</u>	19762 M	150	<u>.97</u>
		.993			.983

Run #9 7 hr. Charge

20127 M	160	1.01	20113 M	160	1.02
20126 M	160	1.03	20063 M	160	.90
20125 M	160	<u>1.04</u>	19762 M	160	<u>1.00</u>
		1.027			.973

This shown a better voltage for the special cells.

After this run cells were allowed to stand 1 month to see if standing would affect the iron #5760 more than the regular. After this stand the 6 cells were given a 15 hr. charge.

Run #10 15 hr charge.

Only sufficient readings to control cells were taken. No capacities reported.

Run #11 7 hr. charge

20127 M	152.5	.99	20113 M	152.5	1.00
20126 M	152.5	1.03	20063 M	152.5	.95
20125 M	152.5	<u>1.04</u>	19762 M	152.5	<u>1.00</u>
		1.02			.983

This shown that special cells respond to treatment equally as well as our current product.

[ATTACHMENT/ENCLOSURE]

The final run was made to check capacities as this run will give more accurate results.

Run #12 7 hr. charge

Special Cells			Regular Cells		
A. H.		Volts	A. H.		Volts
20127 M	157.5	.98	20113 M	157.5	.99
20125 M	157.5	1.01	20063 M	157.5	.95
20125 M	157.5	1.02	19762 M	157.5	1.00
	Ave. Volts	1.002		Ave. Volts	.98

From the foregoing you will note that in every case there is a slight but definitely high voltage to some capacities in favor of the special cells.

This indicates that with all other items kept the same the difference is due to the iron.

Of course the best is only a limited check on what can be expected from the cells as a more definite result could only be obtained by more run with a large group of cells.

From the foregoing results it is evident that on the very limited test we have given this iron the cells with the special iron have a somewhat better voltage than the regular cells built at the same time.

It is understood that the Nickel plates were from regular production, and were from the same box, thus making the iron plates the only parts different.

Based on the foregoing results and after considering present product I would say that cells with iron #5760 are better than our current product. A more thorough and complete test will be necessary to get a comparison with other cells.

W. H. Patterson.

Handwritten notes:
Mr. Hunter
2/3/25
2-4-25

February 3, 1925

Handwritten notes:
Total
2-4-25

MR. T. A. EDISON:

Mr. Hunter was up yesterday afternoon and spent some time in the Annealing Department and tells me that while he has not yet completed his investigation, he knows that we turned out good work yesterday.

Investigation will be continued and detail report will be submitted at a later date, as to our findings.

*Mr. Stringfellow
Following comment
received from Mr. Edison.
Will you please note and return
to Mr. Hunter.*

G. E. STRINGFELLOW 2-4-25

*Hunter - all pots closed
gives bad work -
They may leak -*

GES:EME

*I think that Refractory
should pass finally
Thru Chloride Calcium
granulated to dry it over*

if you see it from microscope
bubbles produced when you
a gas leaves a liquid
these bubbles burst & scatter
the liquid over the work
if sulfuric acid is used
it does same thing

That is one of the
things not generally
known by Chemists

Z

To - Mr. F. C. Ellison
Grows & Co. Center
Cub. Change in process NiOH
your approval asked for if satisfactory

Since installing the Dorr classifier we find that all impalpable fines are removed by the classifier and that this dust is made in precipitation and cannot be made by grinding nickel hydrate, we would like to eliminate the rewashing and redrying of NiOH after passing thru classifier and filter.

We have made 30 trials of 500 lbs each, submitted all to E. S. B. for tests and find that eliminating these two steps (rewashing & redrying) makes absolutely no difference in the physical composition or electrical capacity of the NiOH, in fact our material processed by Dorr classifier is always better than any other process that we have had.

If approved this will make the NiOH process the step nearer a continuous automatic self-contained operation.

A. F. Hunter.

Approved.
June 5
1925

Test by screening out some
thru 200 mesh if this works
then a heavy gauge with 805 hole
is OK

[ATTACHMENT/ENCLOSURE]

To: C.F.Hunter.
From: H.C.Leonard.

JUNE
2nd,
1925.

Subject: $\text{Ni}(\text{OH})_2$ ** Elimination of Intermediate
Drying and Final Washing.

In order to establish the fact that the elimination of the Intermediate Drying operation can be accomplished and make possible the combining of leaching (percolation of $\text{Ni}(\text{OH})_2$ salts), Final Drying, Crushing and Final Mixing in closed circuit for the purpose of labor saving, steam saving and the further elimination of considerable equipment, the following tests were successfully carried out:

Representative 500 pound portions of 30 successive lots of regular Nickel Hydrate previously leached in Dorr Classifier, were dried, crushed, mixed and sampled in the usual manner for short tube loading weight and electrical run tests.

Results of these tests compared with results on the same lots which were regularly processed, are shown below.

	<u>Av. Load. Wt.</u> (Grams)	<u>Av. 3rd Run.</u> (M.A.H.)	<u>Av. 16th Run.</u> (M.A.H.)	<u>Av. Factored 16th.</u> (M.A.H.)
Regular	7.652	1212	1278	1278
Special	7.621	1208	1282	1284

Comparative Ro-Tap Screen tests on the same materials, are as follows:

	<u>Regular.</u>	<u>Special.</u>
Thru 20 -- On 35 Mesh	35.97%	34.17%
" 35 " 48 "	17.48	16.99
" 48 " 65 "	14.79	14.33
" 65 " 100 "	12.53	12.07
" 100 " 150 "	8.29	8.17
" 150 " 200 "	5.26	5.28
" 200 " "	7.40	8.02
Total	99.72%	99.70%

Screen test results show no material change in the physical quality of the finished product.

To further prove the material so produced was ^{essentially} good in all respects, to the hydrate as presently produced, it was decided to have the following tests carried out by the Research Dept. of the E.S.B.Co.:

- (1) Regular short tube test on 3 tubes to 16th run, in same circuit with Standard $\text{Ni}(\text{OH})_2$ #87E.
- (2) Regular long tube test on 10 tubes to 16th run, in same circuit with Standard $\text{Ni}(\text{OH})_2$ #87E.
- (3) 3-A4 Cells from Lot #8-25-82, to be given 10 runs with a like number of A4 cells from regular production, for comparison.

Results were as follows:

(see next page)

[ATTACHMENT/ENCLOSURE]

P.#2.

To: C.F.H.
From: H.C.L.

6/2/25.

Sub.: N1(OH)₂ ** Elimination of Intermediate
Drying and Final Washing, (continued)

Short Tube test:-

	Standard #875.		S-25-82.	
	Av. 3 Tubes.		Av. 3 Tubes.	
	1st Test.	Duplicate.	1st Test.	Duplicate.
Load.Weight	7.765 Gms.	7.777 Gms.	7.583 Gms.	7.645 Gms.
1st Run	.969 M.A.H.	857 M.A.H.	831 M.A.H.	767 M.A.H.
2nd Run	1091 "	1030 "	1154 "	1066 "
3rd Run	1128 "	1095 "	1232 "	1159 "
14th Run	1240 "	1198 "	1292 "	1206 "
15th Run	1241 "	1240 "	1303 "	1299 "
16th Run	1251 "	1241 "	1320 "	1272 "

Long Tube Test:-

	Standard #875.	S-25-82.
	Av. 10 Tubes.	Av. 10 Tubes.
Tube Wt.-- (Active Material)	10.828 Gms.	10.015 Gms.
Hydrate - Wt.per Dump	.03006 Gms.	.03348 Gms.
Flake --- Wt.per Dump	.00448 "	.00444 "
Number of Dumps	299.5	282.0
1st Run	1237.5 M.A.H.	1200.1 M.A.H.
2nd "	1441.8 "	1529.9 "
3rd "	1530.9 "	1636.2 "
4th "	1494.2 "	1689.3 "
5th "	1539.1 "	1662.8 "
6th "	1597.7 "	1692.6 "
7th "	1647.2 "	1711.9 "
8th "	1601.7 "	1716.3 "
9th "	1629.2 "	1718.3 "
10th "	1655.2 "	1736.2 "
11th "	1677.1 "	1714.8 "
12th "	1682.9 "	1733.9 "
13th "	1711.2 "	1749.3 "
14th "	1695.8 "	1703.9 "
15th "	1745.9 "	1765.1 "
16th "	1789.6 "	1780.9 "

A4 Cell Test:-

Three cells made up with special Nickel Hydrate S-25-82 and given regular formation, then 10 additional runs in comparison with 3 cells picked at random from regular production. The special cells were numbers 3551 N, 3552 N, 3553 N and the regular cells were numbers 3581 N, 3584 N, 3534 N.

The following figures give the average voltage for a given capacity of the two groups of cells on all runs on which readings were taken:

(see next page)

[ATTACHMENT/ENCLOSURE]

p.43.

To: C.F.H.
From: H.C.L.

6/2/25

Sub.: Ni(OH)₂ ** Elimination of Intermediate
Drying and Final Washing, (continued)

Run No.	Charge.		Discharge Rate.	Ampere Hours.	Terminal Voltage.	
	Hours.	Rate.			S-S-S2.	Regular.
1	48	15	30			
2	10/14	30/15	30			
3	10/14	30/15	30			
				NO	READINGS	TAKEN
					(FORMATION RUNS)	
4	15	30	30	172.5	1.043	1.037
5	15	30	30	172.5	.870	.863
6	7	30	30	168.0	1.017	.997
7	7	30	30	162.5	.980	.937
8	7	30	30	167.5	1.010	1.007
9	7	30	30	160.0	1.067	1.050
10	15	30	30	172.5	.923	.873
11	15	30	30	167.5	.910	.857
12	15	30	30	160.0	1.003	.960
13	7	30	30	160.0	1.023	.942
14	7	30	30	160.0	.970	.747
15	7	30	30	162.5	.900	.737
16	7	30	30	165.0	1.020	.960

It is quite apparent from the results obtained on short tube, long tube and A4 Cell tests, that hydrate produced by the same method as S-25-S2, has better capacity characteristics than either Standard Hydrate #875, or the hydrate from regular production used in the manufacture of the regular A4 cells which were selected at random for the test. The special hydrate is normal in every respect as to loading, number of dumps, dumpweight, etc., and representative of the regular product used at Orange for a considerable length of time. Any change desired in the latter instances would be of a minor nature and can be accomplished by the co-operation of Edison Chemical Works and Edison Storage Battery Co.

Prior to the use of Dorr Classifier for leaching, elimination of Intermediate Drying and Final Washing after crushing would have been impossible on account of large percentage of fines retained in the hydrate by the method of percolating hot distilled water through the hydrate and then through mesh in which acted as a filter medium preventing the removal of fines at that point.

Screen tests also show that practically the same amount of fines is produced in the final drying, screening, mixing and drumming operations after final washing, as were present after crushing and before final washing, therefore, the final washing after crushing would seem superfluous.

The final washing, while seemingly of no material benefit in so far as the quality of the product is concerned, causes a 2.25% loss of material which can be saved if said final washing is eliminated.

The proposed closed circuit method, of which the new Dorr Classifier is the first link, combining leaching of Nickel Hydrate Salts, drying, crushing and final mixing operations, eliminating one intermediate drying operation with its equipment of pans and pans, the rolls and screens as presently laid out with labor which will be unnecessary if the proposed method is adopted and the final washing operation which includes one Dorr Classifier and Thickener, will make the following savings on Steam, Labor and Interest on money released, at 1500 cells production, per day:

(see next page)

[ATTACHMENT/ENCLOSURE]

P. #4.

To: C.P.H.
From: H.C.L.

6/2/25.

Sub: Ni(OH)₂ ** Elimination of Intermediate
Drying and Final Washing, (continued)

Labor, (4 men at 55¢ per hour),	per day	\$ 17.60
Steam, (17580 pounds at 70¢ per thousand),	per day	15.26
	Total, per day	\$ 32.86
300 Days at \$32.86 per day		\$ 9858.00
Interest on \$9858.00 at 6% per annum		537.48
Interest on 26000 pounds hydrate in stock at 40¢ per pound, at 6%		624.00
Actual savings, per year		\$ 10119.48

If the amount of money released by elimination of stock in process could be considered, there would be a further saving of \$10400.00, making a total initial saving for the first year amounting to \$20519.48.

The probable cost of equipment, plus installation, to make the closed circuit possible, should not exceed \$15000.00.

The intermediate drying operation can be eliminated at once, but there can be no labor saving until the process has been combined in closed circuit.

Several other advantages of the closed circuit method, are

Elimination of #5 and #6 tunnels with large Sturtevant Blower, 10 H.P. motor and several thousand feet of 1 1/2" W.I. pipe.

Elimination of 34 -- 44 pon cars.

Elimination of #1, 2, 3, and 4 tunnels, making available much floor space for further shortening of operations.

Elimination of weighing and handling operations.

Elimination of a cost step.

Elimination of 10 foot Dorr Classifier and Thickener, with motors and hoist.

The foregoing information is for the purpose of obtaining the proper permission to eliminate the intermediate drying of Nickel Hydrate at once and to proceed to finality with the proposed closed circuit method.

Attached, find rough flow-plans of present and proposed closed circuit method.

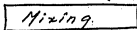
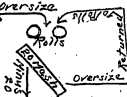
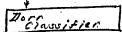
Harry C. Leonard.

[ATTACHMENT/ENCLOSURE]

To: C.F. Hunter.
From: H.C. Leonard.

6/2/50

K
11.6 test
4 day test
11.6 test



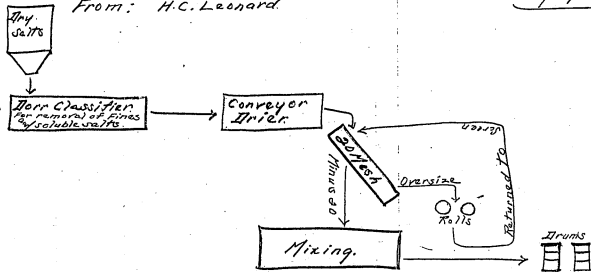
Present Process.

Note: It is not in closed circuit as plan seems to indicate.

[ATTACHMENT/ENCLOSURE]

To: C.F. Hunter.
From: H.C. Leonard.

6/2/25.



Proposed Method.

Note: Everything in closed circuit.

To- Mr. Chas. Edison

FUNCTION-

From- G. F. Hunter

MEMORANDUM NO.

DATE Aug. 10, 1925

SUBJECT-

Obsolete Proctor Drier-

On Dec. 1, 1919 we purchased a Proctor drier for drying our Nickel hydrate. Up to this time it has never been erected, and we would like to dispose of same.

It was originally purchased to bring our drying capacity up to 3000 cells per day, as each drier was rated at 1000 cells capacity per day-and in using two driers we dried at the rate of 2000 cells per day.

In 1921 we changed the Nickel process and increased the drying capacity to 1500 cells per drier, or we can now dry at the rate of 1500 cells per day, or with the two driers we can now dry 3000 cells per day; if necessary to make 3500 cells per day we could run drier on Sunday to tide over any increased production over the 3000 cells per day mark.

Attached sheets are list of parts for disposal, a great amount could be used thruout the Edison Plants in fact the Chemical Works could use considerable of the pipe.

Following data shows dominant facts-

Purchased	Dec. 1, 1919
Cost	15,541.48
Present Book Value	Nothing.

THE We have tried to sell it as a complete unit for a long time without success. There is a great deal of it such as pipe etc. that we can use rather than buying new. I think we get rid of it this way?

COPIES TO-

Mr. G. E. Stringfellow.

Do not sell Aug 17
JAC
 G. F. Hunter
 Manager:

Hewler

You've got
results daily of
short tube tests
for Ni + Iron product
etc. - Hewler
send me copy.

Edison

Subcase of
by H. Edison
Correct report sent to
Mr. Edison Aug 13/21

Duncan

What I would like to know is. Why wasn't it used - How do you a more efficient

Design is that section Prodes Design was not used -

Did you test it.

Give details = WE are always needing Designs

[ATTACHMENT/ENCLOSURE]

To T. C. Edison
From C. J. Hunter

Aug 17
75

Sub - Pactor Drier - re attached memo.

The drier was purchased in 1919 when Charles was Genl Mgr of the Storage Battery and P. Miller was in charge of the chemical works. This drier was purchased with the expectation that the chemical works would produce 3000 cells per day. These orders never materialized so that this third ^{year} was never erected. When we changed the P. Process in 1921 we increased the battery from 800 lbs to 4000 lbs, and lowered the water content so that each drier now dries 1500 cells, under normal and 1700 cells, under emergent conditions, so that to day, we can dry over 3000 cells per day.

Your question "Have you a more efficient drier" we now use for drying finished ^{WCH} one of the old concrete tunnel driers. This drier takes 48 hrs to dry the hydrate and we have to keep steam on it six and seven days a week.

We shall shortly submit to you for your approval a type of continuous drier that will dry the finished ^{WCH} in 6 hours (guaranteed) and allow us to shut steam off with as soon as last of batch is out of drier. This new drier is very more efficient than the ^{old} tunnel or Pactor drier.

As you ^{are} aware we now use the Davy classifier and we wash out the salts in 4 hours where it used to take 72 hours in a percolator, if we install this new drier and dry the material

[ATTACHMENT/ENCLOSURE]

Aug 17,
1951

as it comes from the classifier in 6 hours
we will have cut down the working time
of the two operations from 120 to 10 hrs
or a saving of 110 hrs, which means
a saving of 4 days and 10 hrs on the
nickel process and a money saving
of 30⁰⁰ per day. The new drier would cost
approx \$7000⁰⁰ and pay for itself in
one year

C. F. Hunter

Purchasing Service Department Memorandum No.

August 21, 1925.

WMA Sept 24 / 25

Mr. C. F. Hunter:-

I have learned that Solvay Caustic Soda 76%, has been approved by the U.S. Pharmacopeia.

I am wondering if it would not be possible for you at some time to arrange to use some of this Caustic Soda in a sample batch of your product, to determine if the 76% cannot be used in place of the Electrolytic 76%, which costs us \$3.00 per ton more than the standard price for regular grade Caustic Soda.

Our contract period will be up the end of this year, and if such a test could be arranged, now is the time to do it before the contract period which begins early in December arrives.

A. J. Clark.

Ediphoned-C



*Mr. T. Edison
Would you advise changing
brand of Soda. We now use "Electrolytic"
Eagle Brand - Mattheson & Co
to F. Hunter*

*No do not change stick
to Electrolytic Soda
Edison*

Hunkles

~~And~~ How was

3530 + 3531 made

were sulfates rounded

separately + then

mixed - give details

Σ

[ATTACHMENT/ENCLOSURE]

To: C. E. Kuntz
 Date: May 17th 1926
 Subject: Experiments 3630
 and 3631.

Upon receipt of notes from Mr. E. Kuntz
 with instructions to make up two Fe-Ni
 alloys by crystallization we took 60% of
 FeSO₄ 7H₂O and 40% of NiSO₄ 7H₂O and
 the experimental number 3630 and dissolved
 them in water to a solution with 1250 grams
 which we then concentrated to a quantity
 of 1350. The concentrated solution was
 then run into a test and allowed to
 crystallize for 24 hrs. after which the
 mother liquor was decanted and the
 crystals dried in a pan at about 100° F.
 after drying the sample was reweighed to
 an oxide weighing in at 16.5 and the
 oxide percentage

During precipitation it was noticed
 that the water was evaporating to a
 nickel, and as the precipitate came out
 decreasing to any considerable extent the
 washing was discontinued after 48 hours.
 The oxide was dried and weighed at
 1100° F.

The precipitated Fe-Ni was then reprecipitated
 ground in a ball mill and 3% H₂O added.
 Experiment 3631 was processed the
 same as 3630 but contained a mixture
 at the start of 80% Fe SO₄ + 7H₂O and 20% Ni SO₄ + 7H₂O.

[ATTACHMENT/ENCLOSURE]

Analyses when complete showed the following percentages of Fe and Ni in the mines.

#3630	#3
Iron % 81.89 %	79.49 %
" Ni 1.505 %	3.353 %

This mixture had been sent to Chicago to Mr. Ericson before analysis was received from the laboratory.

J. M. ...

Hunter
Loading Weight of
Iron 26, what
does this mean

26 what.

Edison

7.15 grams nickel
Cant be 26 grams Iron
to pocket

£

[ATTACHMENT/ENCLOSURE]

To Mr. T. A. Edison
From C. D. Hamden
Subj. Loading weight of iron mix
die. May 19. 26
Your enquiry, as to the meaning of "Loading
weight of Iron 26."

This weight is a check made at Detroit Lake to
determine the density of the iron mix.
When the Iron mix has a loading weight of
27 grams, it would be too light and fluffy.
If the weight was 30 grams it would be too
heavy and dense. We try and keep it between
25 & 27 grams.

The test is made as follows
Weigh out 40 gms of Iron mix
Pour this evenly and easily throughout length of
loading weight die.
Place over the loading weight tamp, being careful
not to jar die.

Turn crank slowly and cause tamp to drop
6 times then remove tamp
Scrap off excess mix with scraper
Weigh contents of die

This weight is known as the loading
weight of the Iron mix

(contd)

[ATTACHMENT/ENCLOSURE]

2

The loading weight of the Irons
may be the number of grams
contained in a slot containing
1.1532 cubic inches
All pocket Irons which results
are given on the attached sheet
and 5 grams.

C. D. Hunter

To - Mr. Thos. A. Edison
From - C. P. Kessler
Subj - Black particles in Red Iron.
Date - Mar 21-26

Rec'd your memo commenting on black particles in our red iron.

There is always a very small percent of this dark material in our roasted red iron.
It is caused, as follows:

When, in loading the dried iron sulphate it is dumped on the floor of the muffle, where upon some of these larger pieces $\frac{1}{4}$ or over will fall from the top of the pile, and get to the very outside edge of the muffle, the top is then leveled off, and things regularly and some times ~~impossible~~ to be so. Still the particles that are driven against the side walls of the muffle.

The iron turns dark, a lab's analysis show it to be $Fe_2 O_3$.

Tab #2

We made our regular check test on this dark material and found that by screening out all the lump above 1/8" and then taking the lumps and crushing them thru a 30 mesh screen we found that as a whole the lumps were just a trifle less dense than the material that passed thru the 30 mesh screen on the first screening.

None the less we will take the utmost care and try and eliminate every bit of this material from our regular product.

When we put the Walker crystalizer in service which will be Jan 1, (after we receive your OK) this condition will not exist as the finer grade of crystal contain no lumps the crystals being very uniform in size.

C. J. Hunter.

[ATTACHMENT/ENCLOSURE]

Hunter

If you screen out
the big particles by 1/8 in
of mesh and larger in
size the iron you will
find most of them
black is that is it
when each Edison
is crushed

2

Hunter - What puzzle
is that if you take your
regular Red oxide screen
it then a 10 mesh the
larger ones ~~remain~~ left on
screen has large amount
of this dark stuff -
The outside looks red
but if you crush
individual particles
they show dark -

If you now take say
10 grams crush ~~them~~
it the whole is decidedly
full of ~~the~~ dark particles.
If you put the whole

of the 10 grams in
exactly strong HCl
& put on hot plate
the red will disappear
but the dark particles
do not seem to be
attacked. This proves
that they are not
monosulfide,
After action by acids
these particles under
microscope appear to
look like pieces of
cast iron
another puzzling thing
is there are many
pieces which are flat
& look like iron scale
Although perhaps you
used an iron rake

[ATTACHMENT/ENCLOSURE]

3

and this formed scales
and dropped into the
mixture. I believe that
is the explanation if so
you can plate your
brads & the end Nickel
with Nickel, this don't
scale

In case of event we should
get rid of it as it would
be dead in battery
~~the~~ the battery

248-10057

EDISON CHEMICAL WORKS DIVISION
EDISON STORAGE BATTERY CO.

FUNCTION— To Mr. T. A. Edison
From C. F. Hunter

MEMORANDUM NO.

DATE May 28th, 1926.

SUBJECT— Reclaimed Iron

Since 1922 to the present date the Iron Mix as sent to Orange consists of the following mixture;—

New Iron	88%
Reclaimed Iron	10%
Iron Dust	$\frac{2\%}{100\%}$

At the present time the Storage Battery Co. have made a saving in material and we are unable to further secure this 2% of dust; therefore to keep our production uniform and to continue a saving of 2% on our iron mix we would like to increase the percent of Reclaimed Iron used from 10 to 12%.

We have tried out the mixing of Reclaimed Iron with new Iron Mix as shown on attached chart and at this time want your approval to increase the Reclaimed Iron from 10 to 12%.

Approved. *OKTAG*

COPIES TO— 00 Mr. G. E. Stringfellow.

FUNCTION— Mr. T. A. Edison
From G. F. Hunter

MEMORANDUM NO.

DATE June 10th. 1926.

SUBJECT— Swenson-Walker Continuous Crystallizer

Submitting following data on Swenson-Walker Crystallizer.

We have made and received complete results on 5 batches made on above apparatus. The results on the 5 Gm. Iron Mix pockets are as follows.

Batch No.	8249	8262	8270	8276	8289	Average.
Run 1	1870	1678	1748	1800	1683	1756 } Low
" 2	1600	1680	1690	1643	1620	1667 } Low
" 3	1713	1640	1640	1648	1603	1649 } Low
" 4	1206	1165	1106	1231	1181	1177 } High
" 5	1269	1206	1312	1256	1287	1266 } High
" 6	1419	1260	1339	1325	1425	1352 } Low
" 7	1916	1876	1893	1825	1840	1868 } Low
" 8	1788	1830	1828	1743	1710	1780 } Low

The loading qualities of this iron meets all the specifications required when checked against standard iron mix on a standard iron load machine at Silver Lake.

Batch No.	8249	8262	8270	8276	8289
Pocket Weight	8.03	8.00	8.13	8.07	8.09
Min. & Max. Dumps	15-23	14-19	15-20	14-20	15-21
Average Dumps.	19	16.5	17.5	17.	18.

Therefore with your approval we would like to incorporate the Swenson Walker Continuous Iron Sulphate Crystallizer as part of our regular production apparatus at the Chemical Works.

Approved for use.

OK JAE

Sept 11

Sept 16/26

Notes

Feel you can
shallow boxes of your
respirator upon & usually
passing CO₂ to prevent
physiologic action
You are intended to do
the same thing as you are
reading for sleep
as I find a lot of
sleepers to be
reduced if it works
who would be made just
like the bag (at sleep)
by CO₂ - some transportation
quantity of CO₂ is important

Reduce 200 lbs
put regular way
Cool in hydrogen
till perfectly cold
then pass down
CO₂ for 8 hours
repeat in closed
small cans &
let me know

(Sept.?)

.. inter

The iron with CO_2 is
good

I would like $\frac{1}{2}$ lb
of Nickel ignited Nickel
sulphate being used
if possible & not the hydrox

Reduces with coal &
displaces by CO_2 if
 $\frac{1}{2}$ lb is inconvenient
can use a lesser
amount. Don't screen
it as I want to size
it myself — Edman

To - Mr. T. Abdison
From - C. G. Hunter
Subj. - Treatment of hard rubber pins insulators
Date - Oct 25 - 26

Tried out your scheme of treating pins with HCl. (conc). It worked OK as following report shows.

Treatment

- 1 Immersed for 12 hrs in HCl. (commercial) $100^{\circ} 110^{\circ}$ F.
- 2 Drained and washed with clean water.
- 3 Immersed in Na_2CO_3 sol to free HCl.
- 4 Washed with clean water
- 5 Dried by exposure to air

Results

Treated 1200 pins -

OK for use	90.75%
Rejected for mottled appearance	8.42
Unfit for use	.83
	<hr/>
	100.00%

We will retreat the mottled appearance pins again

C. G. Hunter
Pins treated by above method OK for
use in Storage Battery Co. OK TAE

~~Counter Header~~

~~This receipt is here
with the old lot packet.~~

~~It is used to run
1400 to 1300 MATH.~~

~~M.E.~~

See attached memo

Counter

Header = The receipt
you send to which I want
noted 750 MATH on MATH
short letter & debit ²

Hunter

Nickel reduces
250 deg F below iron
hence the η from Oxalate
was ignited too high,
and the temperature of
reduction so high of
all fused pellets.

Make another batch
where Oxalate is
only ignited at lowest possible
temp ~~and~~ ~~and~~ ~~and~~
by hydrogen which should
not exceed 300° Centigrade
Reduce η at 400° Cent
Need to get fine E Self heat

Ignite some Nitride of Ni
at lowest possible temp
reduce in Hydrogen
at 350°C as near as
possible - Self Secret

Hunter If you have

some ailments send up
Concepts & records of
Regular Iron treatment
but it self healed

WITHOUT MERCURY

Did I send you some
some more. Nickel metal
made from Oxidate Ni
reduced by Hydrogen &
used up the 6.000 you
sent me - its good -

Edison

Hunter

• Do you get
regularly the fine
Nickel from plating
Dept -

It is the rappings out
of the shot Nickel
we use in plating -

Look out & get it
all - I think we
have 500 lbs now
on hand E

Hunter —

Send me up 10 lbs
of Dried Unprecipitated
Nickel hydroxide &
don't spend any
more money on
Dorr Classifier

Edison

How are you getting on with
the 2 lbs of Ni reduced in H⁺ than
2000 in CO₂ — 2

Hunter

If you want
I can have

Schmenka - Make
up a sample of
the mud slime of
right consistency
also the sand
mixed with sand
at the same dried
speed in separate
bottles -

also bring some

(2)

dried material
down & show
you how it
percolates it -

Or he can come
down & carry out
the whole process
in your laboratory
& give all data
to you or your

3

Man can work
unintelligently to
cheaply put all
your neckel into
Hydroxide ~~and~~
unwound

2

Hunter

Hereafter send samples
of phenol up to
Schmucka to test

note hands kept
off foreign matters

Why can't more perfect
fittings costing more
be used on Condensate
degenerator = 20000 run
shows something
in 100000 20000

Header

Vol. 800 AB
returned by American RR
inspectors. They went to
ok and looking the next
both men + metal
There is no doubt but
what the metal was
put in with considerable
Copper in it. This
Copper has certainly been
so bad you can probably
it in the air - The outside
of pockets are coated
with Copper -

I think one one
of your men here

(2)

slipped he has
precipitated Nickel
Sulphate with Copper
sulphate in product
obtained from the
dive record process

Hereafter you should
have a check it out
for \$1.50 ~~per~~ for
Copper before its
precipitated if you
already have it then
have a check by
another man.

We find Copper is
abundant in the air

3
These 800 follow a
general law—

How

Mr Edison:

Hunter telephoned
and wanted me to ask you
if you had given Louis Ott
instructions to refine 2
gallons of gasoline for him

Mearowenoff

L Ott, Redistill 2
gals Benzol, treat with
Kopper turnings first to
get Sulphur out -
do same thing with
2 gals gasoline - E

[ATTACHMENT/ENCLOSURE]

Hunter

Mr. Edison

Each lot of Benzol received
by the Disc Record is tested as follows.
100 cc are distilled and the distillation
temp. taken and it must distill within
certain limits, then 100 cc or more
are taken put into a flask with
copper turnings, connected with a
reflux condenser, then put on hot plate
over night, if the copper is darkened
any it would be rejected.
If this Benzol from the Disc Record
would probably fulfill your needs.
Will test some Gasoline with
copper and redistill.

L. C. T.

**Special Collections Series -- Chemical Production Records
Edison Chemical Works Records
W. J. O'Dair Papers (1919-1920)**

These documents consist primarily of daily reports and communications prepared for Edison by William J. O'Dair, product engineer at the Edison Storage Battery Co. The dated items cover the years 1919 and 1920. There are also a few undated items from the same period. Included are production testing data on tubes, pockets, and other battery components, along with Edison's notations concerning quality issues. Also included are technical notes from Edison to O'Dair, containing questions, experimental instructions, and requests for materials. Other ESBCo employees mentioned in the documents include researchers Frederick W. Cunningham, Walter H. Patterson, George J. Peck, and Dwight S. Sargent, as well as vice president and general manager Charles E. Sholes. Some of the notes in Edison's handwriting have been stamped on the back with the date and the notation "Edison Storage Battery Co. Product Eng'g Dept." Many of the communications exchanged between Edison and O'Dair were originally fastened together, accompanied by notes from O'Dair indicating that they were being sent to Sholes to "note and return."

All of the documents have been selected except for a few fragments and notes that contain no substantive information.

THESEIN 7.11.53
RECORD OF CAPACITIES.

Silver Lake Pockets. (5 Grams).

Mix Numbers. 4577 Trip.; 4600 Dup; 4604.
 Pocket Numbers. 6009 Reg. to 14 Reg.

22nd run.	24th run.
Capacity @ 750 M.A.	Capacity @ 300 M.A.
1.V. .5V.	1.V. .5V.
Min. 975 - 1750	1675 - 2400
Ave. 1156 - 1777	1653 - 2488
Max. 1425 - 1937	1760 - 2635

Cells # 6009 to 12 Reg. Cut Out. # 6013 - 14 Rerun. See reports # 1358; 1365 for previous results.

Silver Lake Pockets. (5 Grams).

Mix Numbers. 4602.
 Pocket Numbers. 5997 - 98 Reg.

22nd run.	24th run.
Capacity @ 750 M.A.	Capacity @ 300 M.A.
1.V. .5V.	1.V. .5V.
Min. 1137 - 1825	1686 - 2400
Max. 1162 - 1962	1690 - 2600

Cells # 5997 - 98 Reg. Cut Out. See reports # 1357; 1364 for previous results.

Silver Lake Pockets. (5 Grams).

Mix Numbers. 4590; 4590 R; 4595.
 Pocket Numbers. 5953 Reg. to 58 Reg.

30th run.	32nd run.
Capacity @ 750 M.A.	Capacity @ 300 M.A.
1.V. .5V.	1.V. .5V.
Min. 1000 - 1860	1456 - 2345
Ave. 1127 - 2023	1672 - 2414
Max. 1176 - 2155	1600 - 2600

Cells # 5953 to 56 Reg. Cut Out. # 5957 - 58 Rerun. See reports # 1349; 1357; 1364 for previous results.

262
 10/11/53
 521/511
 511
 511

10/11/53
 511/511

EDISON STORAGE BATTERY COMPANY

Memorandum

Mr. Thomas A. Edison; *and partly due to an increase in the percentage of fines in the nickel hydrate which has increased our loading weights per dump.*

Regarding the low capacity on 2nd factory 1000 tubes, I would advise that this condition has been appreciated, and is ~~caused~~ due to the lack of control over the nickel flake plating process. Our loading weight on flake has risen at various periods from February 15th to date to as high as (15% of the total amount of active material in 2nd tubes; whereas the normal percentage should be from 12 to 15%. Our ~~loading~~ *loading* weight on hydrate has *generally* ~~been~~ *varied* ~~to the high limit~~ *to the high limit (about .04 grams) as shown below* has been caused by irregular and heavy flake (thickness of sheets .010 instead of .009) in some cases, and in other cases, to *improper drying* ~~improper drying~~ has been corrected by the installation of a blower in the drying room. In regard to the irregular flake, a lack of sufficient new anodes has compelled us to use anodes longer, thereby obtaining an uneven thickness of plating in the flake plating process. We are still ~~short of~~ *short of* nickel anode supply, but expect that this condition will be remedied by April 14th, ~~on~~ *on* which date 300 anodes are promised for shipment. Additional shipments at the rate of 100 anodes a day are also promised, so as to make a total of 1,600 for the month of April. *5.5 milligrams per amp per day*

With reference to the heavy flake, it was found that the time limit relays on the Sangamo meters were out of adjustment. This is being corrected.

~~It is being~~ *flake plating process is being* ~~checked~~ *checked* this situation carefully, and should it develop that our anode requirements are not being satisfied, we will arrange, if necessary to avoid a repetition of this shortage, to have anodes manufactured at Silver Lake ~~for~~ *for* ~~shipment~~. The nickel hydrate is ~~out of our~~ *out of our* Control, but

W. J. O'Fair

Product Engineer.

The increased percentage of fines has been brought to the attention of Mr. J. V. Miller with the request that the grading be kept within the allowable limits

*Not sent for reference
Keep for reference only*

EDISON STORAGE BATTERY COMPANY.
Daily Report.

Date May 6, 1919.....

Storage Battery—Lowest capacity after formation.

Rated Capacity	112.5	150	197.5	225	300	350	450	18.75	37.5	75	112.5
Type	A3	A4	A5	A6	A8	A10	A12	B1	B2	B4	B6

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

193.2 — 225
240

*Older
This is getting lower
Muller says he is
giving you good
iron now & can
make it so*

Rated Capacity	100	125	150	175	225	275	350	450	37.5	62.5	75	87.5	112.5
Type	G4	G5	G6	G7	G9	G11	G14	G18	J3	J5	J6	J7	J9

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

*Will always load satisfactory
I've been at work at it & know how
cum so if you do not get
it OK in every case let me
know quickly*

Mao.

Σ 7

EDISON STORAGE BATTERY COMPANY.

Daily Report.

O'Dair

Date. May 15, 1912.....

Storage Batteries—Lowest capacity after formation.

Rated Capacity	112.5	150	187.5	225	300	350	450	18.75	37.5	75	112.5
Type	A3	A4	A5	A6	A8	A10	A12	E1	E2	E4	E6

Average amperes
hour capacity
to 1. volt of
10% or lowest
cells on each
set formed and
sent to stock.

157

425

160

Rated Capacity	100	125	150	175	225	275	350	450	57.5	62.5	75	87.5	112.5
Type	G4	G5	G6	G7	G9	G11	G14	G18	J3	J5	J6	J7	J9

Average amperes 112
hour capacity
to 1. volt of
10% or lowest
cells on each
set formed and
sent to stock.

O'Dair

*Pretty low
Wells said you were not,
using any of the poor ones
but evidently some got there
Sawyer*

Mac.

O'Dair
If this is the case why was test Dept so careless
to put on test a soft end packet when it is
so easy to inspect, Jack them up E. Edison
5-16-19

Mr. Edison

The packet which gave 1267 MAH
to .5V was a soft end packet and
loose in grid. Readings are
correct and trouble is entirely
due to soft end and loose packet.
You will note that capacity to
.5V on 16th run is lower than
on 8th run which shows the effect
of iron working out of packet.
Sediment in can shows this also.

EDISON STORAGE BATTERY COMPANY.
Daily Report.

Date... May 22, 1919.....

Storage Batteries—Lowest capacity after formation.

Rated Capacity	112.5	150	187.5	225	300	350	450	18.75	37.5	75	112.5
Type	A3	A4	A5	A6	A8	A10	A12	B1	B2	B4	B6

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

150
300
W.D. -
And you gettin
good iron now
Miller tells me so
E

Rated Capacity	100	125	150	175	225	275	350	450	37.5	62.5	75	87.5	112.5
Type	G4	G5	G6	G7	G9	G11	G14	G18	J3	J5	J6	J7	J9

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

Mac.

EDISON STORAGE BATTERY COMPANY,
Daily Report.

Date.....June 5..1919....

Rated Capacity.	112.5	150	187.5	225	300	375	450	18.75	37.5	75	112.5
Type.	A3	A4	A5	A6	A8	A10	A12	B1	B2	B4	B6

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

187.5

330

330

37.5

O'Dair

Rated Capacity	100	125	150	175	225	275	350	450	57.5	62.5	75	87.5	112.5
Type	G4	G5	G6	G7	G9	G11	G14	G18	J5	J6	J6	J7	J9

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

225

Don't look good

Mac.



EDISON STORAGE BATTERY COMPANY.

Daily Report.

Date... June 2, 1912.....

Storage Batteries—Lowest capacity after formation.

Rated capacity.	112.5	150	167.5	225	300	375	450	19.75	37.5	75	112.5
Type.	A3	A4	A5	A6	A8	A10	A12	B1	B2	B4	B5

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

225 330

X

*OK
to this order
needs more
look in book
W.C.*

Rated Capacity	100	125	150	175	225	275	350	450	37.5	62.5	75	87.5	112.5
Type	G4	G5	G6	G7	G9	G11	G14	G18	J3	J5	J6	J7	J9

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

225.

X

*Saw 7 a E
6.11.19
Showered
received
6.11.19
low cap
pe
to J.M.*

Mac.

EDISON STORAGE BATTERY COMPANY

Memorandum

June 11, 1919.

SUBJECT: G.E. Thermostatic Metal.

*O'Dair -
This is interesting
tag*

Mr. Meadowcroft:

Attached is a sample of Thermo-static metal and literature concerning the same. I spoke to Mr. Edison about this today and he seemed interested in it.

As it is the only sample and the only literature I have, I would request that it be returned.

W.S. O'Dair
W.S. O'Dair

Product Engineer

See file

FILE NO. 36.90

EDISON STORAGE BATTERY COMPANY.
Daily Report.

Date. June 13, 1919.

Storage Batteries—Lowest capacity after formation.

Rated Capacity	112.5	150	187.5	225	300	375	450	10.75	37.5	75	112.5
Type	A5	A4	A5	A6	A8	A10	A12	B1	B2	B4	B6

Average amperes
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

135

400

O'Rain
Why

Rated Capacity	100	125	150	175	225	275	300	450	37.5	62.5	75	87.5	112.5
Type	G4	G5	G6	G7	G9	G11	G14	G18	J5	J5	J6	J7	J9

Average amperes
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock...

24⁰
247.2



Mac.

EDISON STORAGE BATTERY COMPANY.
Daily Report.

Date... June 16, 1919.....

Storage Batteries—Lowest capacity after formation.

Rated Capacity	112.5	150	187.5	225	300	375	450	37.5	75	112.5	18.75
Type	A3	A4	A5	A6	A8	A10	A12	B2	B4	B6	B1

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

135
135
154

324
375

33.7
33.7

*Order
How to Court
this is a long
understand it an order
of the fact you have
good men*

Rated Capacity	100	125	150	175	225	275	350	450	37.5	62.5	75	87.5	112.5
Type	G4	G5	G6	G7	G9	G11	G14	G18	J3	J5	J6	J7	J9

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

225

*Saw 7AE
6.30-19
on this*

Mao.



6-17-19

MacMullen

Dear O'Keefe how

our following ⁴⁻

platform goes

Edison

EDISON STORAGE BATTERY COMPANY.
TESTING DEPARTMENT.

Date June 24, 1919.

Storage Batteries—Lowest capacity after formation.

Rated Capacity	112.5	150	187.5	225	300	375	450	18.75	37.5	75	112.5
Type	A3	A4	A5	A6	A8	A10	A12	B1	B2	B4	B6

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

X 337
375

O'Dair, What are you doing
with these low cells—
E

Rated Capacity	100	125	150	175	225	275	350	450	37.5	62.5	75	87.5	112.5
Type	G4	G5	G6	G7	G9	G11	G14	G18	J3	J5	J6	J7	J9

Average ampere
hour capacity
to 1. volt of
10% of lowest
cells on each
set formed and
sent to stock.

Sent to E
6/30/19
on this

Mac.



7-10-19
5th floor office

O'Dair -

Send me about 25 lbs
of Sulphate of Nickel

& 3 pounds of the
fine ~~best~~ flour nickel
that you make, in
preparing your Superior
Nickel hydroxide
Then I understand you
return to Sicks. Want it
clean, not sopping.
If you want any good
Rog Ni hydroxide I
will grind it fine myself
Chg all to E Incorp, Dept ^{EXP. 101}

7-10-19

O'Dair -

Please send me
about 5 lbs.

of the Brown
Nickel iron mud
from flake plating

Dept - E Inc

O'Rain 7-19-19

Please send me
over about 5 lbs of
the fine dust made
by hydrate you
screen out,



Delivered 5 lbs. Fl & Hyd Sweepings
by messenger
- Also 5 lbs Hydrate by WMA

Delivered 7-21-1919
WAB

O' Dear ^(Miserable)
take you
washed plate

I find that you are
losing a large
amount of Nickel in
your ^{wash water} filter pieces
Iron Nickel mud —

Washing it with water
quies green liquid, from
which Carb Soda
brings down Nickel
You better get a check
on this at once please

O'Dair,

Please fill this
bottle with Iron Mix

Edison

Am now getting
this ~~waB~~ waB

9-10-1919 Sent 4702 #

Dr. Bair -

It looks to me that
if you bring density
of Nickel ~~like~~ ^{like} Cement
below 100 ^{supper foot} you will
save considerable
money in costs of Cement
than you will lose
by increased porosity
etc -

Solomon

[ATTACHMENT/ENCLOSURE]

~~8, 20~~
Sep 15, 1928
Sept. 11, 1929.

FROM: W. J. O'Dair
TO: Mr. Pederson, Chem. Lab.
SUBJECT: Memo. from Mr. T. A. Edison.

I have received the following memo. from
Mr. T. A. Edison:-

O'Dair -

It looks to me that if you bring density
of Nickel Flake Current below 100 amperes per foot
that you will save considerably more in costs of current
than you will lose by increased wages, etc.

Edison.

"Will you kindly prepare for Mr. Edison's information data which will show the correct relation between current cost, as affected by current density, time required to plate one stripping and pounds per crane produced. These relations might be expressed in graphic form as follows:

Horizontal Ordinate	Vertical Ordinate
Time required for plating	Current Density
Pounds produced per crane	Time required for plating.

If there is any other information which you believe would make this clear I think it would be well to include it in your reply.

W. J. O'Dair,
Product Engineer.

DAILY REPORT
RESEARCH DEPARTMENT
EDISON STORAGE BATTERY COMPANY

1548

October 14 1919

SILVER LAKE HYDRATE (Short Tubes)

Hydrate Numbers _____
Tube Numbers _____
Landing weight _____ 3rd run .9V. After 10 Tot Run _____
Minimum _____
Average _____
Maximum _____
Number of tubes loaded heavier than 7,800 grams _____

Still going

FACTORY LONG TUBES

Hydrate Numbers 789 - 790 - 792
Tube Numbers 32628 to 32634, 32661 to 32667 x
Landing weight _____ 3rd run .9V. Landing weight _____ 3rd run .9V.
Minimum 10,510 1408
Average 10,575 1447
Maximum 10,655 1504
Number of tubes loaded heavier than 10,800 grams _____

SILVER LAKE POCKETS (5-grams) SILVER LAKE POCKETS (8-grams)

Mix Numbers _____
Pocket Numbers _____
Capacity at 750 M.A. _____ Capacity at 300 M.A. _____ Capacity at 750 M.A. _____ Capacity at 400 M.A. _____
1. V. .5V. 1. V. .5V. 1. V. .5V. 1. V. .5V.
Minimum _____
Average _____
Maximum _____

FACTORY POCKETS (8-grams)

Mix Numbers _____
Pocket Numbers _____
Landing weight _____ Capacity at 750 M.A. _____ Capacity at 400 M.A. _____
1. V. .5V. 1. V. .5V. 1. V. .5V.
Minimum _____
Average _____
Maximum _____

SINGLE IRON PLATES (B Type)

Mix Numbers 4908, 4914, 4885 Dup, 4900 Mix Proportions 4898 Dup, 4899 Dup, 4897 Dup, 4888 Dup 4902 Dup.

Plate Numbers 2224 to 2235 xx

Landing weight	Capacity to 1. V.			Doat.	Run 1	Run 2	Run 3
	Run 1	Run 2	Run 3				
6.151	28.49	20.25	18.88-31.19	6.993	23.75	19.19	17.04 - 29.88
6.256	27.00	19.79	17.50-29.88	6.031	24.38	20.75	20.00 - 33.25
6.432	26.82	19.07	17.50-29.36	5.918	21.88	19.07	17.19 - 28.67
6.515	25.54	18.38	16.69-27.82	6.095	24.69	22.38	21.25 - 34.32
6.333	24.07	17.69	16.38-27.82	6.287	24.87	21.25	20.00 - 33.63
6.218	25.82	19.13	17.50-29.88	6.100	24.38	21.75	20.60 - 32.38

x All cells will run on _____
xx All cells will run on _____

A. R. Cook.

(over)

Bo-Run Capacities

Factory Long Tubes 1/2"

Hydrate No. 789 - 784 - 790, 788, 784, 782

Tube No. 32598, 99, 32600 to 32627		Run 12
Loading Weight		
Min	10.425	1471
Avg	10.852	1679
Max	10.855	1646

All cells will run on and will have solution renewed.
For previous results see report 1539, 1542, 1545

Factory Long Tubes 3/16"

Hydrate No. 790, 793, 794, 795, 799

Tube No. 2008 to 2011, 2028 to 2031		Run 6
Loading Weight		
Min	5.150	690
Avg	5.200	711
Max	5.240	747

Cells will have 10 hot runs and 3 normal runs
For previous results see report 1545

Silver Lake Pocket (5 grams)

Mix No. 4921 R +

Pocket No. 4921 R+1 & 2 R

	Run 22	Run 24
Min	1100 - 1937	1580 - 2515
Avg	1106 - 1949	1620 - 2520
Max	1112 - 1962	1660 - 2525

Cells had solution renewed and new nickels
Cells will run on
For previous results see report 1532, 1540

Single Iron Plates "B" Type

Mix No. 4905, 4904

Plate No. 2222, 2223

	Run 4	Run 5	Run 6
Loading Weight			
Min	6.118	21.07	16.88
Avg	6.512	19.69	17.60
Max			20.63 - 34.19
			17.60 - 31.69

Cells will cut out
For previous results see report 1543

DAILY REPORT
RESEARCH DEPARTMENT
EDISON STORAGE BATTERY COMPANY

1561
October 17 1919

70E

SILVER LAKE HYDRATE (Short Tubes)

Hydrate Numbers _____
Tub Numbers _____

	Loading weight	3rd run	After 10 Hours
Minimum		.9V.	.9V. .5V.
Average			
Maximum			

Number of tubes loaded heavier than 7,800 grams _____

1/4" FACTORY LONG TUBES 5/16"

Hydrate Numbers _____
Tub Numbers _____

	Loading weight	3rd run	Loading weight	3rd run
Minimum		.9V.		.9V.
Average				
Maximum				

Number of tubes loaded heavier than 10,800 grams _____

SILVER LAKE POCKETS (5-grams)

SILVER LAKE POCKETS (8-grams)

Mix Numbers 4938, 4939

Pocket Numbers 4938 - 39, 1 & 2 R xx

	Capacity at 750 M.A.	Capacity at 300 M.A.	Capacity at 750 M.A.	Capacity at 400 M.A.
	1. V. .5V.	1. V. .5V.	1. V. .5V.	1. V. .5V.
Minimum	856 - 1837	1670 - 2746		
Average	921 - 1912	1597 - 2769		
Maximum	1000 - 1975	1756 - 2825		

FACTORY POCKETS (8-grams)

Mix Numbers 4902, 4902 & scrap, 4907, 4908

Pocket Numbers 7547 to 7566 x

	Loading weight	Capacity at 750 M.A.	Capacity at 400 M.A.
		1. V. .5V.	1. V. .5V.
Minimum	7,800	812 - 1962	1547 - 2627
Average	8,306	1018 - 2369	1869 - 3197
Maximum	8,800	1212 - 2567	2400 - 3593

SINGLE IRON PLATES (B Type)

Mix Numbers _____ Mix Proportions _____
Plate Numbers _____

	Loading weight	Capacity to 1. V.		
		Run 1	Run 2	Run 3
75.10				
75.11				
75.12				
75.13				
75.14				
75.15				
75.16				
75.17				
75.18				
75.19				
75.20				
75.21				
75.22				
75.23				
75.24				
75.25				
75.26				
75.27				
75.28				
75.29				
75.30				
75.31				
75.32				
75.33				
75.34				
75.35				
75.36				
75.37				
75.38				
75.39				
75.40				
75.41				
75.42				
75.43				
75.44				
75.45				
75.46				
75.47				
75.48				
75.49				
75.50				
75.51				
75.52				
75.53				
75.54				
75.55				
75.56				
75.57				
75.58				
75.59				
75.60				
75.61				
75.62				
75.63				
75.64				
75.65				
75.66				
75.67				
75.68				
75.69				
75.70				
75.71				
75.72				
75.73				
75.74				
75.75				
75.76				
75.77				
75.78				
75.79				
75.80				
75.81				
75.82				
75.83				
75.84				
75.85				
75.86				
75.87				
75.88				
75.89				
75.90				
75.91				
75.92				
75.93				
75.94				
75.95				
75.96				
75.97				
75.98				
75.99				
76.00				

Remarks: x Cells 7561, 52 had solution renewed and will run on, all other cells will cut out. xx All cells will run on.

75.40 - 75.41 70.32 222.5
75.25 - 75.16 87.23 272.25 A.M. Cook
75.48 - 75.13 87.23 23.33 201.75
(over) 201.75

Run-Run Capacitors

Factory Long Tubes 1/2"

Hydrate No. 789 - 784 - 790, 788, 784, 782

Tube No. 32698, 99, 32600 to 32627

	Loading Weight	Run 16
Min	10.425	1442
Avg	10.522	1589
Max	10.655	1846

All cells will run on
For previous results see report 1559, 1542, 1545, 1548

Factory Long Tubes 1/2"

Hydrate No. 789 - 790, 792

Tube No. 32628 to 34, 32661 to 32667

	Loading Weight	Run 6
Min	10.510	1425
Avg	10.575	1504
Max	10.655	1563

All cells will run on
For previous results see report 1548

Factory Long Tubes 3/16"

Hydrate No. 785, 789, 772, 774, 778, 779, 780, 775

Tube No. 1938, 41, 53, 55, 56, 57, 60, 62, 63, 66, 67

	Loading Weight	Run 26
Min	5.140	723
Avg	5.180	859
Max	5.200	870

Cells will have 10 hot runs and 3 normal runs
For previous results see report 1530, 1533, 1544, 1545, 1549

Single Iron Plates "B" Type

Mix No. 4908, 4914, 4885 Dup., 4900 & scrap, 4896 Dup., 4899 Dup., 4897 Dup., 4898 Dup., 4902 Dup.

Plate No. 2224 to 2235

Loading Weight	Run 4	Run 5	Run 6
5.131	21.57	20.00	20.44 - 32.82
5.256	19.62	18.75	19.25 - 31.82
5.812	19.07	18.60	18.75 - 31.32
6.012	18.32	16.63	17.50 - 29.13
6.333	13.19	15.44	16.00 - 29.32
6.218	18.75	17.82	18.75 - 31.88
5.993	20.00	18.75	18.75 - 31.94
6.031	22.60	21.44	22.32 - 35.69
5.918	18.76	17.44	18.19 - 30.00
6.038	23.07	21.75	21.44 - 36.57
6.432	22.19	20.69	21.25 - 36.25
6.100	22.50	21.13	21.25 - 34.38

All cells will run on (one)
For previous results see report 1548

O'Dart
all your sheets shown
we showed that
long tubes that
cause of
to 1940
Here is a very
bad case -
Do I already get
full information

10-27-19

Copy Old

Mr Edison:

We were able to load
pockets in machines using
only 1 tamp. We got a
weight of 4 grams for the
standard 8 gram pocket.

Iron is very light and
plugged in loading.

We also loaded pockets by
hand and got 6 grams by
tamping as much as possible.

Silver Lake 5 gram
pockets are loaded by hand.

Will try to locate experimental
1 tamp machine but believe
we can load with regular

Copy

machine by using only 1
or 2 tamps, for
experiments

Oldair

O'Dair -

Send me over this Can. full
of the iron Nickel mud you have
in bins -

Essex

OK
ways

Oct 28-1919

Ardu. 10-29-19. ¹⁰⁴⁵

O'Dear 29 Sep 1919 ^{est}

I send you a sample of
Iron by a new process
No Mercury - Please have
worker load it in machine
like Reg Machine, see
how it works mechanically

Its screened thru 20 mesh
& can be delivered always
like this sample -

Have some packets set
up for tests give me the
results whenever OK
Edwin

file TAE memo

October 29, 1919.

Mr. T.H. Patterson, Research Department.
Mr. H. Chamberlain, Repair Department.
Mr. D.S. Sargent, Cell Test Department.

The following note from Mr. Edison is self-explanatory:-

"O'Dair,

When you come across a lot of very old cells that test below 120 for A-Four - please remove the mix from the tubes and let me have it. While I can regenerate the Ni(OH)₂ from a 140 cell, it may be I can't do it from cells giving only 100 amp.hours capacity. Therefore would like mix from 10 or 20 very low cells. Don't give me cells whose low is due to acid or other abnormal conditions, but those which have naturally gone low. Be sure and put explanatory cards on the mixes you send.

"E"

If you have any cells or know of any that are now in 3rd class stock, in 2nd class stock or in Research Dept. which will meet these requirements, please forward to Mr. Peck, who will remove nickel oxide and flake. Please be sure about acid or other unusual condition, and also about capacity of cells selected. There should be not less than ten cells selected.

W.J.O'Dair

Copy to Mr. Peck.

Mr. Peck,

When these cells are delivered, will you please remove and arrange for delivery to T.A.E. Laboratory on R.M. order. Charge to T.A.E. personal.

W.J.O'Dair

10-29-19

Copy

Mr Edison

Archers tells me that
experimental non loading
machines was scrapped &
thrown out about 4 years
ago.

If you think necessary
we will make one up, but
believe we can get along
with present regular
machine for tests.

O'Dan

TAE

DAILY REPORT
RESEARCH DEPARTMENT
EDISON STORAGE BATTERY COMPANY

1563

October 29, 1919

SILVER LAKE HYDRATE (Short Tubes)

Hydrate Numbers	Tube Numbers		
	Loading weight	3rd run	After 10 Hot Runs
Minimum		.9V.	.9V. .5V.
Average			
Maximum			
Number of tubes loaded heavier than 7,800 grams			

FACTORY LONG TUBES

Hydrate Numbers	Tube Numbers			
	Loading weight	3rd run	Loading weight	3rd run
Minimum		.9V.		.9V.
Average				
Maximum				
Number of tubes loaded heavier than 10,800 grams				

SILVER LAKE POCKETS (5-grams) SILVER LAKE-POCKETS (8-grams)

Mix Numbers	Capacity at 750 M.A.		Capacity at 500 M.A.		Capacity at 750 M.A.		Capacity at 400 M.A.	
Pocket Numbers	1. V.	.5V.	1. V.	.5V.	1. V.	.5V.	1. V.	.5V.
404B - 1 & 2 R - 5	982	1837	1575	2535				
	981	1849	1575	2540				
	1000	1862	1575	2545				

FACTORY POCKETS (8-grams)

Mix Numbers	Capacity at 750 M.A.		Capacity at 400 M.A.	
Pocket Numbers	1. V.	.5V.	1. V.	.5V.

SINGLE IRON PLATES (B Type)

Mix Numbers	Mix Proportions			
Plate Numbers	Loading weight	Run 1	Run 2	Run 3

Remarks

x Cells will have solution renewed and will run on

A. R. Cook.

(over)

TRUCKING
 TRUCKING
 TRUCKING
 No. Run Capacities

Factory Long Tubes 1/2"

Hydrate No. 420 - 770

Tube No.	32708, 32709	Run 12
Min	10,450	1625
Ave	10,530	1662
Max	10,570	1700

Cells will run on
 For previous results see report 1554, 1557, 1560

10-30-19
 Mr Edison
 1/2 long tube
 capacities are still
 low on early runs
 but eventually come
 up to above 1700.
 All indications + test
 point to formation
 in hydrate.

Factory Long Tubes 1/2"

Hydrate No. 789 - 790, 792

Tube No.	32628 to 34, 32661 to 67	Run 16
Min	10,510	1638
Ave	10,575	1677
Max	10,655	1733

All cells will have solution renewed and will run on
 For previous results see report 1548, 1561, 1564, 1557, 1560

Mr Edison
 Miller says good hydrate
 previously tested of which
 he always says a
 sample is on hand
 tested now
 just shows how
 thin ones the
 hydrate is

Factory Long Tubes 1/2"

Hydrate No. 789 - 794 - 790, 788, 784, 782

Tube No.	32598, 99, 32600 to 32627	Run 27
Min	10,425	1633
Ave	10,522	1789
Max	10,635	1854

Cells 32598, 99, 32607, 08, 09, 10, 11, 12, 13 will cut out, all other cells
 will run on
 For previous results see report 1539, 1542, 46, 48, E1, 54, 55

Factory Long Tubes 3/16"

Hydrate No. 788

Tube No.	2005	Run 24
Min	5,140	793

Cell will have solution renewed and will run on
 For previous results see report 1543, 46, 47, 57, 58
 Cell 2004 cut out on 23rd run

*Miller says good hydrate
 previously tested of which
 he always says a
 sample is on hand
 tested now
 just shows how
 thin ones the
 hydrate is*

Silver Lake Pockets (5 gross)

Mix No. 4943

Pocket No.	4943 - 1 & 2 R	Run 14	Run 16
Min	1462 - 2287	1845 - 2610	
Ave	1512 - 2366	1850 - 2650	
Max	1562 - 2425	1855 - 2690	

Cells will cut out
 For previous results see
 report 1565

TAE

DAILY REPORT
RESEARCH DEPARTMENT
EDISON STORAGE BATTERY COMPANY

1665

October 31, 1919

SILVER LAKE HYDRATE (Short Tubes)

Hydrate Numbers _____
 Tube Numbers _____
 Loading weight _____ 3rd run _____ After 10 Hrs Run _____
 .9V. .5V. .5V.
 Minimum _____
 Average _____
 Maximum _____
 Number of tubes loaded heavier than 7,850 grams _____

OK

FACTORY LONG TUBES

Hydrate Numbers _____ 804, 05, 06, 07, 08, 09, 10, 785
 Tube Numbers _____ 1988 to 1999, 2000 to 2003
 Loading weight _____ 3rd run _____ Loading weight _____ 3rd run _____
 .9V. .5V. 5.050 630
 Average _____ 5.200 730
 Maximum _____ 5.300 730
 Number of tubes loaded heavier than 10,800 grams _____

See Book

SILVER LAKE POCKETS (5-grams)

SILVER LAKE POCKETS (8-grams)

Mix Numbers _____
 Pocket Numbers _____
 Capacity at 750 M.A. Capacity at 500 M.A. Capacity at 750 M.A. Capacity at 400 M.A.
 1. V. .5V. 1. V. .5V. 1. V. .5V. 1. V. .5V.
 Minimum _____
 Average _____
 Maximum _____

FACTORY POCKETS (8-grams)

Mix Numbers _____
 Pocket Numbers _____
 Loading weight _____ Capacity at 750 M.A. Capacity at 400 M.A.
 1. V. .5V. 1. V. .5V.
 Minimum _____
 Average _____
 Maximum _____

SINGLE IRON PLATES (B Type)

Mix Numbers 4914 _____ Mix Proportions _____
 Plate Numbers 2242 xx _____
 Loading weight _____ Capacity to 1. V. _____
 Run 1 Run 2 Run 3
 6.215 28.75 20.44 20.84 = 52.19

Remarks

x All cells will run on _____
 xx All cells will run on _____

A. R. Cook.

(over)

Run Capacities

Factory Long Tubes $\frac{1}{2}$ "

Hydrate No. 420 - 770, 795, 794, 792, 792 - 793

Tube No. 32668 to 32700, 32701 to 32707

	Loading Weight	Run 15
Min--	10,460	1235
Avg	10,566	1496
Max	10,656	1708

All cells will run on
For previous results see report 1563, 1564, 1569, 1562

Factory Long Tubes $\frac{1}{2}$ "

Hydrate No. 770, 795, 812, Duplicates

Tube No. 32911 to 16, 19 to 24, 27 to 32, 35, to 40, 43 to 48

	Loading Weight	Run 6
Min	10,325	1288
Avg	10,566	1521
Max	10,840	1533

All cells will run on
For previous results see report 1562

Factory Long Tubes $\frac{3}{16}$ "

Hydrate No. 796

Tube No. 2036

Loading Weight:	Run 6
5,200	723

Cell will have 10 hot runs and 3 normal
For previous results see report 1562

G. Day
How about
This - something
Rotten somewhere
I never had this
so bad in years -
G. Day

For no. 3000 to note
return

11-3-19

D

O'Dair -

oil

Miller says: Even NaOH which
is known to be ok from
previous tests do not now
Come up -

look at washing of flake -
" " " " " "

" out for oil in loading
+ elsewhere - test ni plating
with Copper sulfate slightly
acidified - ditto flake.

test for residue in Benzene,

(had this trouble once)

test NaOH for Li used in test
tube, see if amount is correct

S

11-3-19

Mr Cunningham

Will you please investigate
into the following as concerned
with present low capacity of
hydrolyte

Flasks - Reeling accessories,
and - rollers - iron

Tubs - Perforation - Oil
plating

In connection with oil
analysis performed one that
they were using a heavy
oil on tubs drawing machines
some time ago. Found out
if we are now using battery

11-3-19

oil. I also asked
Pedersen for a specification
on oil for tub drawing
machines. Found up -
with them.

Turned tubs with some
tubes with oil - both
battery & machine oil
& some without oil.
Washed perfectly clean
with benzine.

Take up with Patterson about
amount of tubes in solution.
Think analysis was OK but
should be checked again.
B.H.

TAE

DAILY REPORT
RESEARCH DEPARTMENT
EDISON STORAGE BATTERY COMPANY

1570

November 5, 1918

SILVER LAKE HYDRATE (Short Tubes)

Hydrate Numbers _____

Tube Numbers _____

	Loading weight	3rd run	After 10 Hot Runs
Minimum	9.544	.9V.	.9V. .5V.
Average	10.264		
Maximum	10.654		

Number of tubes loaded heavier than 7,800 grams _____

FACTORY LONG TUBES

Hydrate Numbers 659, 669, 682, 770, 814, 812, 819

Tube Numbers 32983 to 86, 33008 to 11, 22 to 25, 37 to 52

	Loading weight	3rd run	Loading weight	3rd run
Minimum	9.544	1.527		.5V.
Average	10.264	1.427		
Maximum	10.654	1.608		

Number of tubes loaded heavier than 10,800 grams _____

SILVER LAKE POCKETS (5-grams) SILVER LAKE POCKETS (8-grams)

Mix Numbers _____

Pocket Numbers _____

	Capacity at 750 M.A. 1. V. .5V.	Capacity at 300 M.A. 1. V. .5V.	Capacity at 750 M.A. 1. V. .5V.	Capacity at 400 M.A. 1. V. .5V.
Minimum				
Average				
Maximum				

FACTORY POCKETS (8-grams)

Mix Numbers _____

Pocket Numbers _____

	Loading weight	Capacity at 750 M.A. 1. V. .5V.	Capacity at 400 M.A. 1. V. .5V.
Minimum			
Average			
Maximum			

SINGLE IRON PLATES (B Type)

Mix Numbers _____ Mix Proportions _____

Plate Numbers _____

	Loading weight	Capacity at 1. V.		
		Run 1	Run 2	Run 3
Minimum				
Average				
Maximum				

Remarks _____

x All cells will run on _____

Walter H. Patterson

(over)

FACTORY LONG TUBES
HYDRATE CAPACITIES
No-Run Capacities

Factory Long Tubes 1/2"
Hydrate No. 812 Dup., 770 Dup.,

Tube No.	32917, 18, 33, 34, 41, 42, 49, 50	Run 9
Min	10.380	1475
Avg	10.551	1530
Max	10.730	1613

All cells will run on
For previous results see report 1564, 67

Factory Long Tubes 1/2"
Hydrate No. 774 Dup., 780 Dup., 782 Dup., 788 Dup., 794 Dup.

Tube No.	32846 to 52	Run 21
Min	10.210	1479
Avg	10.388	1597
Max	10.420	1717

All cells will run on
For previous results see report 1562, 56, 58, 61, 64, 67

*Dr. D. D. D. D.
Looks good*

Factory Long Tubes 1/2"
Hydrate No. 408 - 768, 419 - 773, 800, 801, 802.

Tube No.	32635 to 44	Run 15
Min	10.580	1533
Avg	10.621	1563
Max	10.635	1591

All cells will run on
For previous results see report 1558, 61, 64, 67

Factory Long Tubes
Hydrate No. 803, 804, 805, 806, 807

Tube No.	32645 to 54	Run 6
Min	10.385	1388
Avg	10.546	1441
Max	10.655	1500

Cells will run on
For previous results see report 1567

11-7-19

Mr. Edison

Have delivered to you
contents of printed tubes
from 10 type A6 cells
which give 180 AH or
equal to 120AH for one
A4 cell. Attached will
show results of test for
capacity.

This material was
delivered 11-7-19 AM.

Cells	Obs.	
19754A	19753A	all
23908A	9043A	180AH
25236A	6564A	max 1.1V
24066A	33319	max 1.1V
25987A	7915	av 1.043

For CES to note
return.

11-10-19 O'Dair -

Acids or Alkalies ^{or water} have no action on
oil films (Petroleum). However, neither
temporarily - you cannot see these films
11-7-19.

Mr Edison

Send me in clean glass
bottle water used
for washing
flakes down

We use tap water on
finished flake wash.

Well water on Crane wash.

Do you think impurities in
well water would remain
after flake is put thru
separating process (with acids,
steam + agitation acting on
flake).

Have put ^{washed and} some flake in
clear water but observe no
trace of oil.

11-10-19

O'Dair

For Mr Sholes to note
& return
D

11-7-19

ed

Mr Edison

Would like to have
this filtered as per our
conversation.

Am having tubes
made without oil, dry
and with soda solution
for lubricant

Ok

11-10-19

Filtering does no good but
the 1st. ft. from the Mc. when
sent over was cleaned ok
& left a lot of muck
it gets dirty at tube machine
You could filter at machine - 2

O'Car

11-219

9043 - appears OK -

Has no rubber separators

33035, appears to be sealed
all over with thin film of
ferrihydroxide. This cell
has rubber separators.

Iron has been dissolved in
solution and precipitated as
ferric hydroxide by oxidation to ferric
condition which is insoluble.

The negative of course has
no deposit because iron is
in various soluble states.

There are 2 sources of this
soluble iron

(2)

11-219

Either the iron you now use
has more sulphur than usual
or the rubber partitions
separators have not been
treated with hypochlorite
if it treated, it has not been
enough to eliminate the free
sulfur to precipitate
another cause of solution
of iron is organic matter
has got into the solution
somehow this greatly increases
the solution of ferric
iron -

As to 33038 - possibly this
cell has been revised here.

3

11-2-19

Coating both tubes + pocket

you should note that if tubes are running ok. capacity is also then is running ok. When suddenly tubes go bad it may not be due to anything in the tubes but may be due entirely to a change in the iron although the iron gives high capacity —

Any change in the iron may cause ferrous iron to dissolve in greater amount in the electrolyte will affect the tubes

4

11-2-19

manganese + lead will also do same thing

~~12~~ — if you have any old iron made long ago I think Miller had plenty you had better look over later long tubes to see if low capacity of tubes is not due to the improved capacity of new iron in last month. The old iron may bring our 1500 ma tubes up to 1700 on 3rd run whereas later + higher capacity iron may reduce it to 1500.

~~12~~ ~~12~~

Edwin

Dear -

11-10-10

cut

If you can find some of
the old wire in factory
or get it from J. J. Miller &
set up some of the old tubes
with it it would preserve
out of new wire effects
the tubes by developing wires
in electrolyte

5

What kind of water do you
use for making Electrolyte
Miller always used distilled water
Hadn't he had always ~~used~~ used

WJ

foams brings in a lot of
Carbonates Sulphates Chlorides
+ other matter - Every
renewal from Electrolysis
Red from Orange only
makes it worse as these
Chemicals & organic matter
never come out hence
at end of 5 years there is
a accumulation I suspect
when they changed over from
making electrolyte at 5L to
Orange that either nothing
was said about using
distilled water or it was
changed. In fact water is
like scale in a Boiler

11-10-19

J's Hair-

ced

It may be that the iron mix
is so improved that it is
much more soluble in
NaOH, than the old iron
this deposits on tubes,

You might have 1750 on
tubes with old iron giving
1500 for iron & improve
iron to 1800. This improvement
brings in defects to reduce
the 1750 tubes to 1500.

In other words a change in
an iron may hurt a tube.

Edwin

TAE

*O'Dair & Carroll
understand this as
all heavy runs for each
cell*

DAILY REPORT
RESEARCH DEPARTMENT
NISON STORAGE BATTERY COMPANY

1584 I
November 20, 191

Hydrate Numbers 689, 689, 682, 770, 812, 814, 819
Tube Numbers Reg. 9405, 06, 07, 10 to 12, 15 to 17, 20 to 22, 25, to 27, 42 to 47.

	Loading weight	3rd run SV	After 10 Hot Runs SV
Minimum	7.530	615	1083
Average	7.690	778	1147
Maximum	7.770	860	1209

Number of tubes loaded heavier than 7,800 grams _____
FACTORY LONG TUBES

Hydrate Numbers _____
Tube Numbers _____

	Loading weight	3rd run SV	Loading weight	3rd run SV
Minimum				
Average				
Maximum				

SILVER LAKE POCKETS (5-grams) SILVER LAKE POCKETS (8-grams)

Mix Numbers	Capacity at 750 M.A.	Capacity at 300 M.A.	Capacity at 200 M.A.	Capacity at 400 M.A.
4836 R, 4836 B, 4848, 4953, 4961, 4962	1. V. 1567 - 1562	1. V. 1686 - 2620	1. V. 1686 - 2620	1. V. 1686 - 2620
4956 R, 4956 B, 4961, 4962, 4961, 4962	1. V. 1155 - 2065	1. V. 1752 - 2758	1. V. 1752 - 2758	1. V. 1752 - 2758
	1. V. 1225 - 2187	1. V. 1790 - 2820	1. V. 1790 - 2820	1. V. 1790 - 2820

FACTORY POCKETS (8-grams)

Mix Numbers	Capacity at 750 M.A.	Capacity at 300 M.A.	Capacity at 200 M.A.	Capacity at 400 M.A.
	1. V. 1. V. 1. V. 1. V.	1. V. 1. V. 1. V. 1. V.	1. V. 1. V. 1. V. 1. V.	1. V. 1. V. 1. V. 1. V.
	1. V. 1. V. 1. V. 1. V.	1. V. 1. V. 1. V. 1. V.	1. V. 1. V. 1. V. 1. V.	1. V. 1. V. 1. V. 1. V.

SINGLE IRON PLATES (B Type) Mix Proportions

Plate Numbers	Loading weight	Capacity at 1. V.

Remarks
 x All cells will have solution renewed and will run on
 xx All cells will run on

Walter H. Patterson
Ptd

THEORETICAL
 FACTORY LONG TUBES
 No-Run Capacities:

Hydrate No. 797, 815, 819
 (6007) (8015) (8159) STANGYR EMAL REVLING
 Factory Long Tubes 1/2"
 Tube No. 33134, 33212 to 16, 33228 to 43
 Loading Weight 10.284 Run 8
 Min 10.666 1363
 Avg 10.666 1470
 Max 10.680 1638
 All cells will run on
 For previous results see report 1682
 Cells 33231, 32, 33 put on hot test after 4th run

Hydrate No. 799 - 800, 796 - 800
 Factory Long Tubes 1/2"
 Tube No. 32734 to 47
 Loading Weight 10.515 Run 19
 Min 10.515 1413
 Avg 10.598 1698
 Max 10.670 1675
 All cells will run on
 For previous results see report 1579, 82

Hydrate No. 801, 809, 802, 700, 812, 814, 819
 Factory Long Tubes 1/2"
 Tube No. 33001 to 06, 33018 to 21, 32 to 35, 33101 to 04, 07 to 12, 19 to 22, 30 to 33
 Loading Weight 9.864 Run 9
 Min 9.864 1367
 Avg 10.240 1515
 Max 10.644 1621
 All cells will run on
 For previous results see report 1579, 82

Hydrate No. 659, 669, 662, 700, 812, 814, 819
 Factory Long Tubes 1/2"
 Tube No. 33008 to 11, 22 to 25, 37, 39 to 51, 32995 to 96.
 Loading Weight 9.644 Run 18
 Min 9.644 1553
 Avg 10.260 1658
 Max 10.654 1704
 All cells will cut out
 For previous results see report 1570, 73, 76, 79, 82

Hydrate No. 659
 Factory Long Tubes 1/2"
 Tube No. 32996
 Loading Weight 10.064 Run 17
 Min 10.064 1667
 Cell will cut out
 For previous results see report 1570, 1574, 77, 80, 83

O'Dair

11-21-19

Sluggish coming up of long tubes seems not to be due to hydrate or iron mix

Suppose you find some old flake - I may be able to find some if you can't, but think you have some around -

Make tubes old & new hydrate but this old flake.

This will prove that its not the flake. We havnt proved that yet,

Are any of Millers short tubes & latest hydrate showing up good.

I see you have $1\frac{1}{2}$ Million tubes in stock room - I remember once

that we made up some tubes into cells A4 that had been in stock room for several months & they wouldnt come up to Capacity & we decided we would never stock tubes

Another Case we made up 1 Million tubes & shipped them to Germany. They were assembled in Germany but did not come up to Capacity -

~~you~~ you make your tests on fresh tubes of course so its not this -

Send me over $\frac{1}{2}$ doz fresh loaded tubes

Σ

TAE

DAILY REPORT
RESEARCH DEPARTMENT
EDISON STORAGE BATTERY COMPANY

1685

November 21, 1919

SILVER LAKE HYDRATE (Short Tubes)

Hydrate Numbers 821, 823, 829, 830, 831, 832

Tube Numbers Reg. 9430 to 9441 x

	Loading weight	3rd run weight	After 10 Hot Runs 1037 - 1108
Minimum	7.800	.9V. 7.80	.9V. 1100 - 1157
Average	7.722	.87	1100 - 1157
Maximum	7.720	.920	1140 - 1207

Number of tubes loaded heavier than 7,800 grams

1/4" FACTORY LONG TUBES 3/16"

Hydrate Numbers

Tube Numbers

	Loading weight	3rd run weight	Loading weight	3rd run weight
Minimum				.9V.
Average				
Maximum				

Number of tubes loaded heavier than 10,800 grams

SILVER LAKE POCKETS (5-grams)

SILVER LAKE POCKETS (8-grams)

Mix Numbers

Pocket Numbers

	Capacity at 750 M.A. 1. V. .5V.	Capacity at 300 M.A. 1. V. .5V.	Capacity at 750 M.A. 1. V. .5V.	Capacity at 400 M.A. 1. V. .5V.
Minimum				
Average				
Maximum				

FACTORY POCKETS (8-grams)

Mix Numbers

Pocket Numbers

	Loading weight	Capacity at 750 M.A. 1. V. .5V.	Capacity at 400 M.A. 1. V. .5V.
Minimum			
Average			
Maximum			

SINGLE IRON PLATES (B Type)

Mix Numbers

Mix Proportions

Plate Numbers

	Loading weight	Capacity to 1. V. Run 1	Run 2	Run 3

Remarks

x All cells will have solution renewed and will run on

Walter H. Peterson

P.W.

(Over)

TRINITY FIELD
 TUBING CAPACITIES
 FACTORY LONG TUBES 3/16"

Hydrate No. 805
 (ASBUT HOME) STARKVILLE BRINE PUMPS
 Tube No. 1990, 1991
 Loading Weight Run 27
 Min 5.055 807 - 827
 Avg 5.102 820 - 842
 Max 5.110 833 - 857
 Cells will run on
 For previous results see report 1565, 1568, 78, 80, 83

Hydrate No. 770
 Tube No. 33162 to 69
 Loading Weight Run 12
 Min 10.000 1596
 Avg 10.106 1628
 Max 10.170 1667
 Cells will run on
 For previous results see report 1577, 1580, 1583

Hydrate No. 808, 09, 10, 11
 Tube No. 32655 to 60, 32710
 Loading Weight Run 21
 Min 10.606 1621
 Avg 10.710 1696
 Max 10.820 1758
 Cells 32657, 58, will cut out, others will run on
 For previous results see report 1568, 71, 74, 77, 80, 83

Hydrate No. 659, 669, 682, 770
 Tube No. 32997 to 33000, 33012 to 15, 26 to 29, 95 to 98
 Loading Weight Run 5
 Min 9.164 1447
 Avg 10.020 1623
 Max 10.334 1687
 Cells will run on
 For previous results see report 1553

Hydrate No. 812, 814, 819
 Tube No. 35111 to 14, 23 to 26, 35 to 38
 Loading Weight Run 6
 Min 10.194 1589
 Avg 10.423 1463
 Max 10.684 1538
 Cells will run on
 For previous results see report 1553

Hydrate No. 770
 Tube No. 33038
 Loading Weight Run 9
 10.054 1526
 Cell will run on
 For previous results see report 1580, 83

[ATTACHMENT/ENCLOSURE]

Edwin -

Something is very rotten & never know
a short while to go as low as this

Have you found any side
of lake & set up traps as
suggested

Edwin -

Edwin

C. W. -

11-25-19



Probably the copper
got in but not from
Mexico from Central
dropping in C.C.C. -

The Mercury in Ceeps
is loaded with

Copper -

Σ

Nov. 26, 1919

O. P. Baird -

Remind me to
send them over
me

Report on Special Tests

Done.

charge - 400 milliamperes for 15 hours.

discharge - 300 milliamperes to 1 volt.

Test - Hydrogen displaced by CO₂, gas - no mercury.

Packets

Paper 26

Paper 27

8077

1055 milliamperes

1015 milliamperes.

8078

1245

1340

8079

900

915

8080

980

965

Tubes.

Short Tubes - Experimental Special

Test. Hydrogen obtained from nickel oxide in formic tubes, and reduced by special porous tubes, use of glucose.

Tubes

1505

1506

O. W. List runs

W. H. Patterson

11-23-19

O'Dair-

Do you have a tank
to hold your Electrolyte
to permit Iron Oxide to
settle out, Drawing Clean
liquor by Siphon—
The way we did it at the
Lake— All Electrolyte
Samples you have sent us
we deposits large quantity
of Ferric Oxide on plating

Σ

[ATTACHMENT/ENCLOSURE]

O'Raw



Send me over 24
rings that you part
with end tubes



11-28-19

Mrs Edison

We use 2 settling tanks each 3'-10" deep 13' diameter and draw off solution to about 3" from bottom of tank. Tank is normally filled to about 10" from top. When NaOH is first dissolved we pass air thru for about 2 hours to agitate. Solution settles for 2 days as a minimum before pumping off. About 30,000 lbs of 2.5% solution makes up a batch. In the past our analysis have not shown above .008 $\text{Fe} + \text{Al}$ and sediment in bottom of tank has been little. We have now arranged to have tanks cleaned after every 4th batch to remove any sediment also to put cap on outlet to prevent any agitation of sediment when solution is pumped off.

Am sending 24 $\frac{1}{4}$ " tube rings

Have located a piece of sheet nickel and will have it rolled to .005 and run test as you outline.

Edwin

11-29-19

Mr Patterson

Attached from Mr
Edison is self explanatory
Will you please arrange
to send these to him,
keeping the non grids in
solution & store positives,
for at least 2 weeks or
until other disposition is
advised.

J. D. Bair

Calls sent to Mr Edison
11-29-19. Holding positives
in solution until notified

12-1-19 - 7 P. M.

[ATTACHMENT/ENCLOSURE]

O'Neil
 Cut out these Report on Special ^{see} tests
 from Edison ^{new set}
 Date - charge - 400 milliamperes

Nov 29, 1919

Discharge - 750 milliamperes to 1 volt and .5 volt
 Hydrogen displaced by CO₂ gas - 40 mm. Hg.

Rockets	Run 28	Run 29	Run 30	31
	v.	v.	v.	v.
8077	600 milliamperes	500 milliamperes	600 1437	1105
8078	912	850	750 1675	1367
8079	575	462	562 1375	1015
8080	612	560	587 1338	1035

Nickels

Stock Sub-Experimental Special
 Hydrate obtained from nickel oxide in formed tubes, and
 reduced by special process thru use of glucose.

Subs	Run 57	Run 59
	v.	v.
1575	1200	1153
1586	1250	1213

Walter H. Lattinsson

del
O. Dair

November 21

You promised me some old
Nickel my taken out of tubes
that was below 130 amp
Capacity — Be sure and
not mix this lot with any
other, we have been sending
over for old mix from time to
time to continue our
Regeneration Expts so do
not mix the special lot
with your regular old
mix but mark it special
& give Capacity on
container —
S

ENHIMW-3

W's O'ban

With reference to the second part the following things have been tested in this division.

- Current regulation.
- Flake
- Dross
- Hydrate
- Electrolyte
- Using iron from miniature iron cells.
- Testing for grounds.
- Test of hot circuits
- Check meters
- Using recording meters
- Interchange of personnel.

Interchange of circuits
Interchange of meters.

W.H.?

A check will be made on electrolyte by using pots. against soda.

A meter will be inserted in place of a cell for further check.

12/1/19

~~12/1/19~~

NaOH Equivalents

Reported upon 12/29/19

LiOH 10.57 grams per liter

or

1.845 grams actual LiOH

per liter as of sol.

OK - this is correct

for the solution you are

using of NaOH Claven

Procedures as per data

per Cell -

Edyne

12-8-19

O'Dair

Please put up two ray
 little heat cells with Ray
 long tubes, don't use any
 current but leave them in
 hot heat rack so they will
 be subjected to 130° for
 one week — Then remove
 + Run them just as if they
 were new. Cells just doing
 on last —

12-3-19
 Mr. Peterson
 Please send
 all order. I will
 take them to the
 send papers up to
 Mike for F.H.E.

12-8-19
 O.D.A.
 Please for Peterson
 to get this second



12-8-19

Mr. Miller

You have probably
noted results of Test # 875
on Manganese in Iron.

Average capacity of
139.6 AH on A⁴ seems to
prove our manganese theory

[Signature]

12-8-19

Nov 6 pair.

Have put 2 long tubes
on test as outlined.
Used tubes with 770 hydrate
540 Flake and 7908 Nov.
Electrolyte 15% NaOH + 11.2 gms.
LiOH per liter from drum
received Dec. 6, 1919.

Tubes will go on charge
and discharge Dec. 15.

W.H.P.

O'Dair

OK 12.15.19

We went over to Storage
Bat Co. for paper Nicks to
cast ~~some~~ about 150 lbs of
shredded. After casting I
tested it & found 14% of
Co paper in it.

But this dangerous stuff
to have around & please
investigate & Report.

Edison

SECRET (TAS)

12-16-19

I think this is OK

Mr Edison

Some time past I had designed a special can for testing a single A or G type plate. Will have these ready for plates you send.

Unless you direct otherwise will run on same cycle of test as new A4 on our life test.

Will use 15% NaOH + 50 grams lithia per liter and add dry lithia to make equivalent to 90 grams per A4 or actually a total of 22 1/2 gr lithia for 1 plate.



OK

ODaw

Mr Cunningham

Please note & return

Noted

✓

1-13-20

Mr Beck

Please note attached
Will you please advise
in what shop & how this
was done

A handwritten signature, possibly "J. W. Beck", written in dark ink and underlined.

[ATTACHMENT/ENCLOSURE]

O'Dair

Here is a sample of tough
nickel. After running
three years consecutively
in hydrogen it is as
tough as glass

You better investigate
your hydrogen

It always comes
soft & brittle

E

CO. JOURNAL 1901

Dear

How about those nickel
sheets that were brittle,

If you want I will make
you several sheets so you
can put pieces in pots
to check your hydrogen

1800
2 1/2
1500 in. diam
1 hr
cool over
1 hr
in

Edison

[ATTACHMENT/ENCLOSURE]

1-14-50

The study of and I give
with more for the following
amounts of T. T. T. T. T.
from 11:00 to 11:00 P. M. in a
11:00 to 11:00 P. M. in a
from 11:00 to 11:00 P. M. in a

from 11:00 P. M. to 11:00 P. M.
and for 14 hours.
The hydrograph is supplied
to a constant. Results in the
may be a number of peaks in
the. Would like to get
some additional data
to check hydrograph. Ok
Ok

2-16-50

M. L. L. L.

Our reports on long tubes have been diminishing. The boundary might do not correspond with the capacity reported. On each group of tubes tested we select the lowest coverage weight tube weight & capacity & report for the entire group without regard to particular tubes.

The attached table indicates a lack of uniformity which we are trying to trace down on facade & tube loading machines.

The fact that, in general way, the MCH per gram of tube weight decreases as the weight per tube increases, seems to show proportions of flake is high, probably getting too much flake
O. H. A. R.

[ATTACHMENT/ENCLOSURE]

O'Dair

23 tests		23 tests	
Low tubes	Low tubes	High tubes	High tubes
Weight	Run	Weight	Run
10440	1577	10590	1736

low tubes have 150 Milgrms less weight,
 " Run 159 Millamp hours less.

If 87.5% in N. & A.)
 then high tube has
 low tube

9266 milg - 5.3 milg to MA
 9135 " 5.8 milg to MA

High tubes 188 MAH per gram
 Low " 172.4 MAH per gram

O'Dair note this
 Every low tube (23 tests) is low capacity
 with No exceptions,

There seems to be something wrong here
 low tubes should only be only 30 MAH less
 if the nickel was functioning as in high wt
 tubes - 129 mah lost extra in each tube
 This is 15 amp capacity loss in A & C cells

DOT-100M-10-10

MEMORANDUM

THOMAS A. EDISON INDUSTRIES

MR. G. G. Beck - Mr. Wallace
11

DATE May 31, 1970

AVOID VERBAL MESSAGES
CONFIRM VERBAL UNDERSTANDINGS

FUNCTION

Please note attached and see that
loading of Type B packed is kept as much as
possible to high limit

[Signature]

Please return

Attached to 11/21/70
George

[ATTACHMENT/ENCLOSURE]

1270-2200-1218
7/16 2216

DAILY REPORT
RESEARCH DEPARTMENT
EDISON STORAGE BATTERY COMPANY

1698

March 18, 1942

SILVER LAKE HYDRATE (Short Tubes)

Hydrate Numbers 770, 876, 926, 932
Tube Numbers Reg. 10004 to 15 x

	Loading weight	3rd run	After-10 Hot Runs
		5V.	5V.
Minimum	7.750	1040	1140 - 1135
Average	7.750	1165	1218 - 1239
Maximum	7.650	1267	1270 - 1310

Number of tubes loaded heavier than 7,800 grams

1/4" FACTORY LONG TUBES

Hydrate Numbers

Tube Numbers

	Loading weight	3rd run	Loading weight	3rd run
		5V.		5V.
Minimum				
Average				
Maximum				

Number of tubes loaded heavier than 10,800 grams

SILVER LAKE POCKETS (5-grams) SILVER LAKE POCKETS (8-grams)

Mix Numbers

Pocket Numbers

	Capacity at 750 M.A.		Capacity at 300 M.A.		Capacity at 750 M.A.		Capacity at 400 M.A.	
	1. V.	.5V.	1. V.	.5V.	1. V.	.5V.	1. V.	.5V.
Minimum								
Average								
Maximum								

FACTORY POCKETS (8-grams)

Mix Numbers

Pocket Numbers

	Loading weight	Capacity at 750 M.A.		Capacity at 400 M.A.	
		1. V.	.5V.	1. V.	.5V.
Minimum					
Average					
Maximum					

SINGLE IRON PLATES (B Type)

Mix Numbers

Plate Numbers

	Loading weight	Capacity to 1. V.		
		Run 1	Run 2	Run 3
Minimum				
Average				
Maximum				

Remarks

x All cells will run on except Reg. 10008 to 15

Walter H. Peterson

(over)

[ATTACHMENT/ENCLOSURE]

Hydrate No. 809 - 810, 810, 810 - 811, 907 - 912
 Tube No. 33979 to 32, 33063 to 59, 33916 to 22

		Factory Long Tubes 2"	
Min	Loading Weight	10.530	Run 6
Avg		10.566	1479
Max		10.700	1598

Cells will run on
 For previous results see report 1695

Hydrate No. 860, n885 - 860
 Tube No. 33888 to 99, 33900, 01

		Factory Long Tubes 2"	
Min	Loading Weight	10.600	Run 6
Avg		10.562	1483
Max		10.600	1544

All cells will run on
 For previous results see report 1692, 1695

Oil appears a slight increase
 in loading weight enormously increase
 Capacity + 10% not load heavier
 6.6 to 6.8 Edison

Hydrate No. 815
 Tube No. 33191 to 97

		Factory Long Tubes 2"	
Min	Loading Weight	10.510	Run 25
Avg		10.548	1704
Max		10.600	1744

All cells will cut out
 For previous results see report 1674, 77, 80, 83, 86, 89, 90, 93, 96

Mix No. 4838, 4917, 4919, 4940 Duplicates, 4947 R, 4948

		Single Iron Plates "B" Type		
Plate No.	2306, 06, 07, 08, 09, 10	Run 4	Run 5	Run 6
Loading Weight	6.081	16.25	13.63	13.00 - 26.88
	6.180	14.82	12.38	11.44 - 23.75
	5.992	20.94	18.32	18.69 - 30.00
	6.156	19.67	17.50	18.63 - 29.88
	6.437	24.67	21.26	22.38 - 36.19
	6.543	22.60	19.88	21.82 - 33.00

All cells will cut out
 For previous results see report 1694

Hydrate No. 770, 924
 Tube No. Reg. 9976 to 79, 84, 85

		Silver Lake Short Tubes	
Min	Loading Weight	7.700	Run 19
Avg		7.720	1197 - 1200
Max		7.750	1248 - 1287

All cells will cut out except Reg. 9984, 85 which will go on 50 hot
 For previous results see report 1695

O'Deer - ^{Fab with}
^{Formula}
^{for this}
^{work}

Here is some of the
recovered data you
sent over which I
have rechecked with
Oxalic it brightens it
considerably
I sent formula I used
these records are

Put up 4 more
single long tube cells
for total using this
flake Eutectic - 100%
might put up 4 Reg. Clock
cells with Reg. & flake E.C.W.

O'Daw

Please fill this bottle

with the solution that
devalues the Copper out
of the flake when separation
takes place. Man will want
for it -

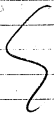
Edwin

X

O'Dair -

Two barrels can fill
of the Coffee Carbonate
from the pile in the
yard -

W. L. Wood



O'Dair

fill

Send me 1/2 doz pin marked
separators that had been
bicaled with Hypo & 1/2
doz not bicaled

5

61.31

- El Air

Why is it that, loading
Dumps see view at
Dodge lake with same mix
& supposed to be same
machines, is 37% less
dumps maximum & 41%
less on minimum

How can things be
compared with this
great discrepancy. Better
find out El Air.
Loading weights are about the same

Edison

O'Dair - all

Have heard nothing from
the ~~same~~ short tube

I sent over to Walter
Archer, please
send over what
results attained
to date

5

O'Dair-

OK

You had made flake just sent over is 2 shades off color -
Take 2 watch glasses put
Equal amounts of Reg flake
& lead oxide flake & you
will see the color is dull

2nd Note that size of flakes
in lead is larger, as compared
to a sample of Reg sent over
to me - Undermicro &
notice hollow work of holes thru
some flake as if treated with

2

strong acid probably this
has no surface area

I will test for lead

Edson

O'Dair - all

Even if you can't get but
6 grams in an 8 gram ~~packet~~
why not make 4 tubes
& test, it will give us
grams per Mampers hour.

Could you not fasten
a weight to your lamp,
feed less each time to get 25
to 50 lamps & get in say
4 @ $1\frac{1}{2}$ grams in packet

Edson

O'Fair

col

When you come across
a lot of Very old cells
that test below 120 f or A.
four - please secure
the mix from the tubes
& let me have it, while
you regenerate the mix
from a 140 cell it may
be you can do it from
cells giving only 100
amp h Capacity - therefore

would like ² mix from
10 or 20 Very loco cells
don't give me cells that
low is due to acid or
other abnormal condition
but those which have
naturally gone loco

S

Be sure you put Explanatory
Cards on the mixes
you send Σ

O'Dier

Cl

I am certain that I can tell
that they had a test loading
machine where big test packets
were loaded without requiring
so large a quantity of coal
as for the ordinary experiment
Perhaps John Waller has it
also WE originally had an
plunger - iron loading machine
for making tests - perhaps
Waller either can find it
If I am going to Experiment why
not take an old machine

stop off all but 2 Tamps
put on a small hopper
so you can load
samples like that
just visit —
Answers if you can

S

**Special Collections Series -- Chemical Production Records
Edison Chemical Works Records
Other Experimenters (1914-1927)**

These documents, which cover the years 1914, 1919, 1924, and 1927, consist primarily of technical notes and instructions by Edison relating to manufacturing processes and performance tests for storage batteries. The experimenters mentioned include employees John V. Miller, Ludwig F. (Louis) Ott, and Arthur Pedersen, as well as consulting engineer Lamar Lyndon.

All of the documents have been selected except for items that duplicate the information in selected material.

[February 6, 1944]

Loell

Exp # 1821 ERVKS.

59. Packet # 14549 - 81-90-92

14550 - 83-91-93

Sent this down

to J V Muller

when truck comes

next time, tell

him to put up

2 test packets

& have them

tested

Σ

See Research #856

1st - Annealing strip in Hydrogen -
air gets in Hydrogen -
2nd Hydrogen not passed free enough -
3rd on cooling down Vacuum is created
& if Hydrogen is not watched Oxygen
sucks in & oxidizes Nickel & this
takes long time to reduce in battery
when not returned, Contact is bad

2nd Perhaps Lithium not watched
& proportions of water too great
& not enough Lithium to equal the
standard gets in -

3rd Specific gravity of Electrolyte
not correct -

4th = Iron mix has too many large size
particles in it. =

missed to
look 2-3-19

5th I noticed in some plates
sent me about 3 weeks ago
a large number of soft
end pockets, a few of these
in such plates will account
for large loss of Capacity
as iron works out gradually.

6th = There is a considerable
difference between iron bone
dry when loaded & damp
when loaded -

Henry J.
Cook
2-3-19

Project
New Spec
Order for
7 A4
7/11/19

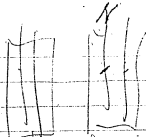
6-22-19

2 A4 Cells vertical case
Nickel plating case complete
in CCCC RT# 157

also cells 3 scraps for
holding charge over
cool down RT# 157

also - 2 A4 for test
where iron packets
not connected
E

6-22-19



Test to show loss in capacity
on negative & positive plates
with nickel plated metal parts
and plain metal parts

(a) - Nickel Plated

I Loss in Capacity, Stand time
for different periods of time
on individual cells of
II loss in capacity on cell
element

(b) - Plain in Parts

I as above
II as above

4-22-19

1. Segregation of fines -

2. Oil gets in mix

3. Tamp rod worn smaller from great use while Miller's tamp rod not worn from small use

4. If you Benzene is full if inside cleaves seem on packets. Except in large Wulfs glass

5. Slight variation in dampness of Fe mix makes big difference in the packet apparatus

6. If Carbons in Compositing die are not functioning well the thick packets take all the pressure

7. Packets - The Nickel gets oxidized makes perfect non conductors

8. 1st Charge not being enough to reduce all the iron in depth should do so, by chipping & hammering by weak long Charge. 1st Charge is the important one.

Mr. Meadows:-

Attached are readings
the Pen = 41.

Gunn
6/24/27

Noted
YWS

145 1708
2007

Copper out By dilute
sol of Barium Sulphide
Use $\frac{1}{2}$ or $\frac{1}{4}$ Concentration
pour in gradually
while being vigorously
stirred, predetermining
amount of Ba sulphide
required on a sample

To test when Copper out
Wet piece filter paper
with 1% ammonia &
with glass rod test
drop of clear sol
which on paper - if

2

any Copper present
sol will be reddish
if none it will be
green -

The Bar sulphide
settles quickly & you
can decant 500 liters
in $\frac{1}{2}$ hour. The mud
can be followed off three
& the thickness of linen
bags -

To Peroxidize for
what little iron there is after
Copper out Use peroxide
Barium -

**Special Collections Series -- Chemical Production Records
Edison Chemical Works Records
Wax Division 1924-1925**

These documents, which date from January-March 1924 and September 1925, relate primarily to experiments on a new, lower-cost wax formulation for use on the recording cylinders of the Ediphone (Edison's dictating phonograph for business use). The correspondents include Nelson C. Durand, vice president of the Ediphone Division of Thomas A. Edison, Inc., and experimenters Walter N. Archer, Edward K. Cary, Charles F. (Frank) Hunter, and Joseph S. Wheelan.

All of the documents have been selected except for one item not related to Edison.

Mr Edison; Ediphone Wax Expt. Jan. 23, 24.

- The composition of the #732 Wax Expt was.
4. Monton wax Saponified with NaOH.
 6. Stearic Acid, saponified with Carb. Soda till 50% Neutral.
 1. Paraffine.

Figuring total records for 100 lb of Mix, sets the figure off slightly less than 4 1/2 cents per cylinder. In comparison to figures of Silver Lake product which was 6 1/2 cents per cylinder.

Durand does this
interest you

H. K. Archer.

Edison

Mr. H. T. ...

H. K. ?

(P)

Mr Edison ✓ Archer 7/6
 How about this
 Mr Hunter, Long Dept. of
 Edison
 Affairs —

500 lbs	Formula	costs	57.50 =
100 "	Paraffine	"	5.00
8 "	Oil	"	0.40
608 "	marked 1381	Cylinders for	62.90 or <u>0.1148</u>

per cylinder
 ↖

There is some mistake in the
 statement by Archer and Co.
 Costs us 6 1/3¢ per cylinder

Unless we see economy in any
 change we would not like to take chances
 with present satisfactory product

You might note we are receiving bills
 from Laboratory of 750⁰⁰ monthly for these
 experiments
 Durand

Feb. 7, 24.

Mr Edison,

I think the price that Mr Leland submitted to you is the cost per record with a mixture of returned wax mixed in, ~~with~~ in speaking to Mr Hunter last night I find that current price of Sene Acid is 10 cts per pound, whereas my figure to you was based at 13 cts, and paraffine to-day is 5 cts. against 5 1/2 cts which I ~~had~~ figured in that report. This takes the price of Experiment # 732 down to 3 3/10 cents per record. Figuring on using all new material.

W. H. Archer.

Durand

Feb. 8, 24

Mr Edison,

The price which I stated as
6 3/4 cts per record Silver takes
price was correct at the time
they gave it to me a few
months back, Mr. Hunters
corrected report is correct
to-day, and there is no
returned wax figured in
this cost.

M. Durand.

To W. W. Archer.
From C. F. Hunter.

Feb 8/24

Sub. Cost of Formula Wax as used in Mfg of

Elephone Cylinders

Following is cost of above

1000 lbs Stearic Acid @ \$1.45 per lb	114.50
225 " Na_2CO_3 10% @ .0275 " "	6.18
4 " " @ .1500 " "	.60
10 " NaOH @ .0425 " "	.425
16 " kerosene oil @ .0500 " "	.80
<hr/>	<hr/>
1755 mixture cost	122.505

When boiled down to correct mixture specimen
1750 lbs, to this is added -

210 lbs paraffine @ .0525 per lb 11.025

This gives

1760 lbs of finished wax @ 133.525 or 1058 per lb

Therefore

Cost per lb	= 1058
lbs per cylinder	.44
<hr/>	<hr/>
Cost per cylinder	.46552

C. F. Hunter

FROM THE OFFICE OF
MR. DURAND

Hunter

Call me
on phone

2/9

(B)

Hunter - Make up
Mr. Edison 50 lbs for a good test.

Finally, Mr Hunter ^{7/19} and Mr. Archer

have decided that REDUCED MATERIAL
COST WILL SAVE PRACTICALLY 1¢
A CYLINDER

But I strongly recommend
that this formula be studied in
manufacture to be sure it is as good
or better than present. Please instruct
Mr Hunter

Olson 7/19

[ATTACHMENT/ENCLOSURE]

Mr Frank Hunter,

Feb. 16, 24.

I hereby submit to you the revised prices up to date, on the following materials.

36 lbs	Montan Wax @	.0375	per lb	=	1.35
54 "	Stearic Acid "	.1145	" "	=	6.183
9 "	Paraffine "	.0525	" "	=	.4725
5 1/2 %	Sal Soda "	.0275	" "	=	.0154
7 3/4 %	Caustic Soda "	.0425	" "	=	.0190
					8.0399

W. R. Archer.

Feb 18
24

Mr. Edison:

~~RECORDED~~
~~with special blank~~

Have tested out 3 Edison
 Blanks as submitted by Mr. Archer.

These Blanks were numbered 2-4th 6.
 Had recorded voice on these three
 Blanks as a comparison with Standard
 Safetac Blanks.

With the result that after
 listening to both Standard and
 Special Blanks.

I could not detect any difference
 for either surface noise or volume.

These blanks are of a uniform
 color, being slightly darker than
 Standard Blanks. After being
 exposed to room temperature the
 special records do not show any
 cloudy appearance.

In conclusion, I might state
 that these records show that
 there is a decided improvement
 in surface noise.

J. Johnson

[ATTACHMENT/ENCLOSURE]

Demand

Will you now
take this up - Make every
test necessary in your
opinion as to ability &
quality & time to
see if any change
Whalen could do this
for you if you have no
one to do it -

Also go ~~into~~ into the
financial part of
the ^{with the} ~~thing~~ to a ~~point~~
the saving of any
& decide
Edison

Ediphone Wax Eggs. March 31, 24.

Mr Edison,

Following conditions is experiments I made which is best suited moulding the blanks which Mr Wheelan last reported #997 Egg Blanks # 2-4 and 6, these blanks were later delivered to Mr Hunter by orders to Mr Wheelan from Mr Leonard.

The congealing point is 160°F. and with the present moulds this wax is very fluid at 275°F. which seeps through and clogs so that it cannot be extracted properly after it shells.

To overcome this I find I had to pour wax at 200-205°F. A.H.R., then trimmed edges took 8 to 10 min. and extracted 5 minutes later, making a blank at 15 min from time of pour till extracted.

The cold mould and core was at room temp.

Copy Mr Hunter.

W. K. Archer.

Mr Durand

Careful analysis and observation shows following faults in proposed new wax. These should be corrected on small scale before starting large batches.

- 1) The congealing point is too low $160^{\circ} F$
- 2) The melting point is too low $140^{\circ} F$
- 3) In our attempt to mold, we succeeded in making 6 ok (mechanical) in two days.
- 4) Average time to cure Archer wax 20 mins - or 3 pounds of machinery per hr against our 5 reprints per hour.
- 5) In edging these blanks the wax melts or softens where knife comes in contact with ends.
- 6) Molds heat up to melting point of wax.
- 7) Would have to increase thickness of shells on mold perhaps could cool by water but in hastening setting of wax you make particles.

CFH

1) C.P. Point

2) Miller Peak
Murray Point

3) Wounded Knee
In summer of 1890
and provide me with

4) 100 miles of country
from the lake

5)

100
360
10
24
200

[ATTACHMENT/ENCLOSURE]

WAX DIVISION
OF
THOMAS A. EDISON, INC.

EDIPHONE

Wax Memo # 78
Mar. 31, 1924.

To : - O. F. Hunter.
From : - E. K. Cary.

Subject : - New Ediphone Wax.

On Feb. 28, 1924, Walter Archer made up his first 50# batch of this special wax, making separate saponifications, then mixing the two together and adding Paraffine. I personally took the congealing point of this mixture and found it to be 160° F. The melting point of this wax was less than 140° F. When cold in pans this wax showed a much greater shrinkage degree than any wax now in use, other than our Sub Master Wax.

We finally succeeded in molding a few Cylinders with this new wax. After considerable difficulty and many discards we obtained six so called O.K. Cylinders in over two days molding. Archer claims that the wax should be at 205° F. when poured. The cooling time as Archer states should be 8 minutes before and 4 minutes after trimming.

A chilled mold is also necessary since it is an impossibility to pour blanks in quick succession after extraction. If this is done the blanks take 25 to 40 minutes each to set properly and then it is almost impossible to extract them because the blanks literally shrink fast to the cores. If the blanks are extracted too soon from heated molds the cores are stripped and the semi cooled wax runs into the molding mechanism. This causes further delay in order to clean the molds.

Using the above specifications I personally attempted to mold blanks with this wax. It is not possible to get a blank molded under 20 minutes, and considerable difficulty was experienced in the extraction. An average ~~wax~~ of one out of four was obtained O. K.

When cold all blanks molded showed large traces of free soda in the form of surface cloudiness.

When these blanks were machined up the results were fair. Owing to the low M. P. the Edging operation caused the shavings to become plastic and gummed up the machines. It would seem that the reuse of these shavings would not be practical owing to the difficulty of collecting semi plastic wax.

On March. 18. Archer made up a new lot of wax, at Orange, using only one saponification. The next day he molded 6 or 8 blanks which took all day. In order to mold successfully he had to use old molds and cores. After each extraction he was compelled to place the molds and cores outside in the cold air and allow them to cool. This process of molding required about 45 minutes more or less for each blank made.

With such a low congealing point no wax can be a commercial success. Where a few Dollars might be saved on a 1000 Blanks in material, using this wax, the discard and labor cost would be so increased that the total cost per blank would be increased rather than decreased. Our present wax cylinder is running about 90% O.K. over all at present. The discard unit cost is less than .002 per blank.

Further more the proposed wax is not suitable to use on our mechanical molding machine, owing to its extremely low C.P. and great shrinkage.

E. K. Cary

Hunter

Recd. Sept 28
25

Why dont
you dry the cloths
used in Cylinder
Edephane blanks
The above bad free
water makes steam
when box heats it
& Causes trouble

Ans. ^{Sept 28}₂₅ Edison

3ms @ 130°

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END

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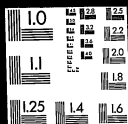
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